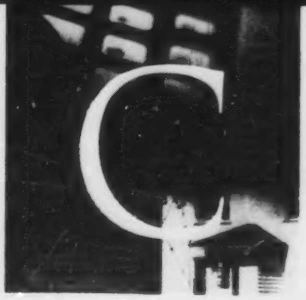

CURRENT HOUSING RESEARCH

VOLUME 8, NO.1

SUMMER 2001

SOCIAL, ECONOMIC AND TECHNICAL RESEARCH

CMHC SCHL

HOME TO CANADIANS

Canada

Issued also in French under the title: ***Recherches courantes sur l'habitation***

Publié aussi en français sous le titre: ***Recherches courantes sur l'habitation***

CURRENT HOUSING RESEARCH ORDER FORM

If you wish to receive any of the completed reports or bibliographies listed, or if you would like to be on the mailing list to receive *Current Housing Research*, please fill out this form and send it to:

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Canada Mortgage and Housing Corporation
700 Montreal Road
Ottawa ON K1A 0P7
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INTRODUCTION

101-06128/

Welcome to "*Current Housing Research*". This publication merges "*Housing Research Quarterly*" and "*Current Housing Technology Initiatives*" and continues the numbering of the "Housing Research Quarterly".

Under Part IX of the National Housing Act the Government of Canada provides funds to Canada Mortgage and Housing Corporation to conduct research into the social, economic and technical aspects of housing and related fields.

Current Housing Research is compiled and produced three times a year by the Canadian Housing Information Centre. This publication provides information and access to research which is undertaken and sponsored by the Corporation. It is also available on CMHC's Website at chic@cmhc-schl.gc.ca

The publication contains information on completed research reports, new publications, videos and bibliographies, as well as planned and ongoing research projects. An alphabetical title index of items listed is included at the end for quick reference.

The overall arrangement of "*Current Housing Research*" is by broad subject category. Within each subject category, lists of planned and ongoing projects and completed research reports are described.

Each entry can contain the following elements:

- The project or report title;
- A description of the project or report results;
- The CMHC Project Officer who is managing the project;
- The Division within CMHC which is responsible for the project;
- For External Research Projects, the grant recipient undertaking the research:
- A Contract Identification Number (CIDN);

- The Status of the project: whether the project is in a planned, ongoing or completed phase. "Planned Projects" are those that are not yet underway, but are likely to be initiated in the current year. "Ongoing Projects" refer to research projects which are currently underway. No reports are yet available. Once the project is completed, and a report is available for distribution, it will be listed as a "completed report."

- Whether the report resulting from the research project is available and the address where the completed report can be obtained.

To discuss research projects that are recent or ongoing, please call CMHC General Inquiries at (613) 748-2000 and ask for the CMHC Project Officer identified under each project description.

CMHC·S EXTERNAL RESEARCH PROGRAM

The objective of the CMHC External Research Program (ERP) is to encourage and enable researchers in the private and not-for-profit sectors to put forward and carry out relevant, innovative, and high quality housing research projects. Under the Program, financial contributions are made to support research investigations into important questions, problems, and issues affecting Canadian housing. Housing research priority areas are identified in the "External Research Program Grants for Housing Research Guidelines and Application Form".

Applicants to the External Research Program must be Canadian citizens or have permanent resident status in Canada.

Independent researchers as well as those employed in Canadian universities, institutions, private consulting firms, the professions and the housing industry may apply for these grants.

Full-time students at the graduate or undergraduate level are not eligible to apply. Students may be hired to assist in the conduct of the research, but under no circumstances may they take over responsibility for the direction of the work or the quality of the final report.

Individuals who are full-time federal, provincial or municipal government employees may apply. However, to be eligible, an applicant must provide a letter of support from her/his employer which shows that the proposed research is not part of, and will not interfere with, her/his regular work. CMHC employees are not eligible to receive grants under this Program.

CMHC is interested in receiving applications on topics related to its housing research priority areas. New ideas and innovative approaches in these areas are welcome.

To obtain the booklet outlining the priority research areas, the guidelines and application form for the External Research Program you may contact:

The Administrator
CMHC External Research Program
Research Division
Canada Mortgage and Housing Corporation
700 Montreal Road, Room C7-307
Ottawa, Ontario
K1A 0P7
Telephone: 613-748-2249
Fax: 613-748-2402
E-mail: erp@cmhc-schl.gc.ca

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TECHNICAL RESEARCH

COST-EFFECTIVE INDOOR AIR QUALITY AND ENERGY EFFICIENCY RECOMMENDATIONS FOR FIRST NATIONS HOUSING

The purpose of this research project was:

-- to prove that less capital investment in First Nations housing but acceptance of higher costs incurred over the life cycle of a house is not cost-effective;
-- to demonstrate the potential for cost-effective, improved housing in First Nations communities; and
-- to demonstrate the value of investigations according to the CMHC Indoor Air Quality Investigative Protocol and the Energuide for Houses Evaluation Protocol as repeatable, effective renovation planning methods that could be implemented by First Nations technical service providers.

Indoor air quality investigations and house energy efficiency evaluations, according to the recognized protocols noted above, were conducted on five sample houses volunteered by the Washagamis Bay Fist Nation.

The research found that the sample of First Nations houses that were investigated were built with low capital expenditure which in the long run compromised the indoor air quality and durability of the houses as well as increased the maintenance costs. The study showed that it is cost effective to implement energy saving strategies at the same time as improving the indoor air quality of the homes.

Prepared by Bill Boles. CMHC Project Officer: Virginia Salares. Ottawa: Canada Mortgage and Housing Corporation, 2001 (External Research Program)

STATUS : New Completed Report
AVAILABILITY : Canadian Housing Information Centre

INFORMATION TRANSFER OF HEALTHY HOUSING (HH) TECHNOLOGY IN THE ABORIGINAL CONTEXT

This project included a Healthy Housing Symposium which took place in June 2000 in the Eagle Lake community (Ontario) and coincided with the grand opening of a Northern Healthy House demonstration unit built by the Eagle Lake community. First Nations interested in Healthy Housing shared construction experiences, appropriateness of the technology and other issues related to Healthy Housing. An Aboriginal consultant is producing a First Nations Healthy Housing best practices booklet to illustrate options, solutions and innovations to address some critical health, safety, durability and affordability concerns of on-reserve First Nations housing. The booklet should be available early summer of 2001.

CMHC Project Officer : *Alain Croteau*
Division : Assisted Housing Division
AVAILABILITY : Publication is not available

CIDN : 2317 020002
STATUS : Ongoing Project

** SEE ALSO: p. 70-71

SUMMARY REPORT FOR CONSORTIUM ON FIRE RESISTANCE AND SOUND INSULATION OF FLOORS: SOUND TRANSMISSION CLASS AND IMPACT INSULATION CLASS RESULTS

The IRC Acoustics Laboratory has completed the measurement phase of a study of airborne and impact sound transmission through typical floor constructions used in Canadian housing. As well as the Institute for Research in Construction (IRC) of the National Research Council of Canada, this project was supported by a consortium of some 18 different organizations and government departments, including Canada Mortgage and Housing Corporation and the Canadian Home Builders" Association. This report presents the sound transmission class (STC) and impact insulation class (IIC) ratings for all the floors in the project. Some of the specimens were chosen by IRC for technical reasons, but the majority of the specimens were approved as part of a structured series established collectively by the consortium. The acoustical measurements included impact sound measurements using experimental, non-standard devices. These measurements were made to provide extra information that might be used to improve the existing standardized tapping machine test or to develop new test procedures. A further IRC report will deal with these experimental impact measurements in detail. The combined set of over 190 specimens provides:

-- data for systematic evaluation of sound transmission through joist floor systems;

-- data for development of prediction methods;

-- data for development of improved constructions; and

-- a consistent assembly of sound transmission class and impact insulation class data needed by builders and regulators to select constructions suitable for party floors in multi-family dwellings.

Prepared by A.C.C. Warnock and J.A. Birta, Institute for Research in Construction, National Research Council Canada. Ottawa: Canada Mortgage and Housing Corporation, 2001, c1998. xiv, 121 pages

STATUS : New Completed Report
AVAILABILITY : Canadian Housing Information Centre

BASEMENTS, FOUNDATIONS & CRAWLSPACES

ABOUT YOUR HOUSE PUBLICATION ON UNDERSTANDING AND DEALING WITH INTERACTIONS BETWEEN TREES, SENSITIVE CLAY SOILS AND FOUNDATIONS

This About Your House publication will provide background information and advice on understanding and dealing with interactions between trees, sensitive clay soils and foundation problems. It will describes where these soils exist, the impact of soil shrinkage on foundations and the potential role of trees in soil shrinkage. It will provide a summary of some of the important factors related to soil shrinkage and foundation stability, as well as tips for managing a tree's contribution to foundation damage.

CMHC Project Officer : *Susan Fisher*
Division : Research Division
AVAILABILITY : Publication is not available

CIDN : 2229 0200002
STATUS : New Project

COMPREHENSIVE STUDY ON SLAB-ON-GRADE FOUNDATIONS

The purpose of this project is to investigate and provide answers to technical questions on slab-on-grade insulation, moisture protection, and heating systems appropriate to be used with such a foundation type, and cost effectiveness in various climate regions of Canada. Other aspects to be studied will be: consumer acceptance of this type of "basementless" house; alternate layout designs to accommodate storage; overall pros and cons of the alternative house foundation type.

CMHC Project Officer : *Ken Ruest*
Division : Research Division
AVAILABILITY : Publication is not available

CIDN : 2275 0200
STATUS : Ongoing Project

INSULATED CONCRETE FORMS TRAINING PROGRAM

This is a multi-partnered project with members including: Cement Association of Canada (CAC), Portland Cement Association (PCA), Insulating Concrete Form Association (ICFA), National Energy Conservation Association (NECA), Alliance of Canadian Building Officials Association (ACBOA), Association of Canadian Community Colleges (ACCC), Seneca College, Southern Alberta Institute of Technology (SAIT), Atlantic Home Builders' Training Board (AHBTB), Canadian Carpentry Union, CHBA, NRCan and CMHC. The CAC is currently developing a two day training program consisting of two modules; Introduction to Insulated Concrete Form Construction, and Fundamentals of Concrete Footings and Foundations. The training program will be of interest to home builders, home inspectors, building officials, and the trades involved in the installation of ICFs. The training program will be developed and piloted over the next two years and will then be delivered through various educational institutions across the country by the year 2003.

CMHC Project Officer : *Darrel Smith*
Division : Research Division
AVAILABILITY : Publication is not available

CIDN : 2411 0200001
STATUS : Ongoing Project

PERFORMANCE GUIDELINE DEVELOPMENT FOR BASEMENT SYSTEMS AND MATERIALS

CMHC is a participant contributing research to this multi-disciplinary, multi-agency study led by the National Research Council identifying knowledge gaps in the performance of basement systems. Guidelines are being developed for design, construction and evaluation of basement materials and systems to ensure their durability and long-term performance. Field work is complete. Guidelines are being drafted. CMHC will look into ways to inform builders and the public about better basement designs.

CMHC Project Officer : *Don Fugler*
Division : Research Division
AVAILABILITY : Publication is not available

CIDN : 1421 0200001
STATUS : Ongoing Project

** SEE ALSO: *Innovative Foundations, Heating & Ventilation*, p. 56
Residential Foundation Systems for Permafrost Regions, p. 57

PROJECT TO PROMOTE IMPLEMENTATION OF THE NATIONAL BUILDING CODE AND A STANDARDIZED BUILDING PERMIT IN PRINCE EDWARD ISLAND: THE HOME BUILDERS' ASSOCIATION OF PRINCE EDWARD ISLAND = PROJET VISANT À PROMOUVOIR L'ADOPTION DU CODE NATIONAL DE BÂTIMENT ET D'UNE FORMULE UNIFORMISÉE DE DEMANDE DE PERMIS DE CONSTRUIRE À L'ÎLE-DU-PRINCE-ÉDOUARD : LA HOME BUILDERS' ASSOCIATION OF PRINCE EDWARD ISLAND

This case study report describes the work in 1998 of the P.E.I. Home Builders' Association to persuade municipal and provincial authorities to adopt the National Building Code and to implement a uniform building and development permit application form. Of the 89 municipalities in Prince Edward Island, only two, Charlottetown and Summerside, apply and enforce the NBC. There is also no building code enforcement in unincorporated areas of the province. The study outlines the arguments in favour of adoption, including consumer protection, safety, financial and industry issues and the impacts on affordability, choice and quality. The standardized permit application form developed by the P.E.I. Home Builders Association is included as an appendix.

Case study written by: Word-Works Communications Services. Prepared for: Federation of Canadian Municipalities; Canadian Home Builders' Association; Canadian Housing and Renewal Association; Canada Mortgage and Housing Corporation. Ottawa: FCM; CHBA; CHRA; CMHC, 2000. (Affordability and Choice Today (A.C.T.) Regulatory Reform Project; ACT Case Study) 36 pages

Order Number: 62001

Étude de cas rédigée par : Word-Works Communications Services. Préparée pour : la Fédération canadiennedes municipalités ; l'Association canadienne des constructeurs d'habitations ; l'Association canadienne d'habitation et de rénovation urbaine ; la Société canadienne d'hypothèques et de logement. Ottawa : FCM ; ACCH ; ACHRU ; SCHL, 2000. (Abordabilité et choix toujours (ACT) projet de réforme de la réglementation ; ACT - étude de cas) 36 pages

STATUS : New Completed Report

AVAILABILITY : CMHC Information Products

RECOGNITION OF SECONDARY SUITES IN THE NATIONAL BUILDING CODE

Secondary (or accessory) suites represent an affordable housing option that has received growing attention from provinces and municipalities in recent years. The National Building Code (NBC) currently views them as duplexes or semidetached units. Some Canadian provinces have changed their Building Codes to allow more lenient requirements for secondary suites, particularly in older houses. This study examined legislation governing secondary suites in several jurisdictions leading to the preparation of a discussion piece on possible changes to the NBC for the recognition of this housing form in the Code.

CMHC Project Officer : *Brian Eames*

Division : Research Division

AVAILABILITY : Publication is not available

CIDN : 2233 0200001

STATUS : Ongoing Project

BUILDING CODES

REWRITING TEST STANDARD CAN/CGSB-149.10 - DETERMINATION OF THE AIRTIGHTNESS OF BUILDING ENVELOPES BY THE FAN DEPRESSURIZATION METHOD

The airtightness standard used for testing houses dates back to 1986. The object of this project is to re-write CAN/CGSB-149.10, incorporating some updates and some alternative techniques. There have been no meetings up until now but there has been extensive consultation by e-mail and document review. Progress has been delayed due to the lack of consensus by committee members. The contractor who assembled the new draft of the document is looking into modifications of the text to satisfy some of the objections.

CMHC Project Officer : *Don Fugler*

Division : Research Division

AVAILABILITY : Publication is not available

CIDN : 1971 0200002

STATUS : Ongoing Project

ROLE OF CONSTRUCTION CODES IN THE CANADIAN BUILDING SYSTEM

The purpose of this joint venture project with NRC and CHBA is to develop two papers which will help in the understanding of the changes to the Model National Codes which are occurring as a result of efforts currently underway to clarify the objectives of these codes and move them to being Objective-Based. The first paper is entitled "Canada's Construction System and the Context for Model Codes". It presents an overview of the system of construction in Canada and the role of Model Codes in that system. The second paper describes the value and benefits of Objective-Based Codes to residential builders and renovators. The papers have been published by NRC.

STATUS : New Completed Report

AVAILABILITY : On the Internet: http://www.ccbfc.org/ccbfc/tgs/obc/docs/

BUILDING MATERIALS

PERFORMANCE OF PLASTIC AND COMPOSITE MASONRY TIES

The objective of this project is to investigate the possibility of using alternative materials (plastics or composites) in the fabrication of masonry ties. Detailed research will be undertaken to determine what has been done in the field of masonry ties around the world. The information received will be reviewed with respect to the appropriateness of plastic or composite masonry ties for masonry construction and the opportunities they represent.

CMHC Project Officer : *Luis de Miguel*

Division : Research Division

AVAILABILITY : Publication is not available

CIDN : 2144 0200020

STATUS : Ongoing Project

SERVICE LIFE OF MULTI-UNIT RESIDENTIAL BUILDING ELEMENTS AND EQUIPMENT

Maintaining Canada's housing stock requires timely investment of funds for replacement of building elements and equipment. CMHC engaged IBI Group to survey experienced building professionals across Canada to obtain real life, non-theoretical estimates of service life for over 230 components in apartment buildings over five storeys high. The information was collected through a three-stage survey and analysis process resulting in an average high-end and low-end estimate of service life for each building item. The resulting range was then divided into approximately equal three sub-ranges: below average, average and above average length of service life. Using a model building, costs were developed based on specific assumptions for length of building life, inflation rate for construction and discount rate. This information produced a range of annual contribution amounts necessary to maintain the reserve fund. This report summarizes the study, lists the results and describes a process to make immediate use of the information.

A generic reserve fund cash flow model has been prepared as part of this project. You may obtain a copy of the Excel spreadsheet from the following URL address:

ftp://ftp.cmhc-schl.gc.ca/servicelife

Prepared by IBI Group. Prepared for Research Division, Canada Mortgage and Housing Corporation. Ottawa: CMHC, 2000. (Housing Technology Series) 68 pages

Order Number: 62280

Note : Aussi disponible en français sous le titre : La Durée de vie utile des matériaux et équipements techniques des édifices résidentiels de moyenne et grande hauteur

STATUS : New Completed Report
AVAILABILITY : CMHC Information Products

VIRTUAL SAMPLE ROOM WEB SITE OF GREEN BUILDING MATERIALS - PHASE II

The Virtual Sample Room is a web site that provides information for designers, builders, renovators, and consumers on building materials that are environmentally responsible and/or minimize indoor air pollution. The site was developed and continues to be owned by a consortium of federal government departments and municipalities. The purpose of this Phase II project was to expand the number of product listings from the original 200, and to improve the promotion of the site. The site now includes approximately 750 product listings, covering almost all areas of construction, and is being promoted by the various partners. The site has a new URL and will be "re-launched" later in 2001. The site is now active and can be visited at http://www.designinggreen.com/ .

STATUS : Completed Report
AVAILABILITY : On the Internet: http://www.designinggreen.com/ .

BEST PRACTICE GUIDE FOR PRE-CAST CONCRETE WALLS

The objective of this project is to develop a practical, advisory document for designers, architects and engineers, and manufacturers, related to precast wall panels in residential applications. Precast is a well developed system in commercial applications but it requires special treatment when used in housing. The project will be conducted in partnership with the Canadian Precast and Prestressed Concrete Institute, installers and their associations. This Guide will be produced as a joint publication through a collaborative project with Public Works Government Services Canada. The Guide, produced in hard copy and CD-ROM format, will address: pertinent building science with emphasis given to aspects particular to precast walls, construction details in AutoCAD format, outline specifications and additional sources of information and references. The anticipated release date for the product is November 2001.

CMHC Project Officer : *Luis de Miguel*
Division : Research Division
AVAILABILITY : Publication is not available

CIDN : 2215 0200001
STATUS : Ongoing Project

BEST PRACTICE GUIDE FOR THE EVALUATION, REPAIR AND MAINTENANCE OF PARKING GARAGES

The objective of this project, a partnership between CMHC and PWGSC, is to develop an advisory document providing guidance for the appropriate evaluation, repair, protection, maintenance and monitoring of concrete parking structures.
Billions of dollars are spent annually to repair and maintain concrete structures. Parking garages are subjected to demanding service conditions; not only vehicular loading but also thermal and moisture loads. In addition, the growing trend toward the use of de-icing salts on our roads by municipalities will ensure the need for future concrete repairs and replacement despite a variety of protective measures to delay the deterioration process. Frequent and often unexpected repairs to these structures place enormous financial burdens on the building owners and property managers.

The principal output from this project will be the production of a detailed technical document aimed specifically towards engineers and technologists involved in the evaluation, maintenance and repair of parking structures.

CMHC Project Officer : *Silvio Plescia*
Division : Research Division
AVAILABILITY : Publication is not available

CIDN : 2278 0200
STATUS : Ongoing Project

INVESTIGATION AND REPAIR STRATEGIES FOR CONCRETE CONSTRUCTION AND CATALOGUE OF INNOVATIVE CONCRETE ASSESSMENT AND REPAIR TECHNOLOGIES

The purpose of this project is to create a survey questionnaire on concrete assessment, repair and monitoring strategies and report on existing protocols regarding concrete problems in multi-unit residential buildings.

CMHC Project Officer : *Silvio Plescia*
Division : Research Division
AVAILABILITY : Publication is not available

CIDN : 1890 0200002
STATUS : Ongoing Project

CONCRETE

STANDARDIZATION OF CONCRETE REPAIR PROTOCOLS

This project will research current assessment, monitoring and repair strategies for concrete repair. Existing protocols commonly used in the field as well as existing protocol guidelines assembled by various agencies (e.g. CSA) will be catalogued. This research will provide consultants, contractors and building owners with available protocols and concrete repair strategies.

CMHC Project Officer : *Silvio Plescia*
Division : Research Division
AVAILABILITY : Publication is not available

CIDN : 1890 02000[illegible]
STATUS : Ongoing Project

CONSUMER PROTECTION

OVERVIEW OF CONSUMER PROTECTION FOR HOUSING IN CANADA

For most Canadians buying a house is the largest financial expenditure they are ever [illegible] make. On an ongoing basis, housing represents a major component of household expenditure [illegible] for mortgage or rent payment, maintenance and repairs or renovations and improvements. This project provides an overview of the context and issues surrounding consumer protection for housing in Canada and collected information on programs, initiatives and activities available to consumers. These include warranty programs, inspection services, consumer information products, training activities, etc. For each, a brief description is provided as well as contact information (website, telephone, address) for the national and/or provincial organizations and associations who offer the programs and can provide more detailed information. The research is complete and a draft report and detailed information about the available programs has been received. The information will be incorporated into a new series of "About Your House" pieces on topics such as " Hiring a Home Inspector", "Hiring a Lawyer or Notary Public", "A Guide to Home Warranties". Some of the topics are already addressed in other recent AYHs such as Hiring a Contractor and the Renovation Series.

CMHC Project Officer : *Brian Eames*
Division : Research Division
AVAILABILITY : Publication is not available

CIDN : 2135 0200001
STATUS : Ongoing Project

CONTAMINATED LANDS

DEMONSTRATION OF SAFE HOUSING ON LIGHTLY CONTAMINATED LANDS

CMHC research into contaminated lands shows that some types of soil contaminants could be rendered innocuous through building design and operation. One example is heavy metals deep within the soil. If these pollutants can be avoided through design, the cost of land remediation could be greatly reduced. The project will include contaminant monitoring and the investigation of the predictive capabilities of site specific risk assessments. Two of the three case studies are complete: a potential soil gas movement problem in a Vancouver high-rise and heavy metals moving from fill in the vicinity of Wells, BC. A third potential location has been identified in the Yukon. Testing will have to follow construction of the houses, which may not take place until 2002.

CONTAMINATED LANDS

CMHC Project Officer : *Don Fugler*
Division : Research Division
AVAILABILITY : Publication is not available

CIDN : 1946 0200001
STATUS : Ongoing Project

ENERGY CONSERVATION

AIR LEAKAGE CHARACTERISTICS, TEST METHODS AND SPECIFICATIONS FOR LARGE BUILDINGS

CMHC recently completed a survey of published air leakage data for multi-unit residential and large commercial buildings. The objective of the study was to compile air leakage data for large buildings, identify air leakage test methods, performance targets and the availability of specifications and quality control procedures to reduce air leakage in large buildings. The results of the review show that virtually all large buildings, both new and old, are quite leaky when compared to recommendations contained within the Appendices of the 1995 National Building Code of Canada. Measured air leakage levels range from 10 to 50 times recommended levels. Despite this, there have been several building projects that have demonstrated that air leakage can be significantly reduced when proper building air barrier details are designed and installed, and where quality assurance measures are in place. The information provided by this project serves to baseline the current performance of air barrier systems in conventional large buildings and also shows what levels of performance are possible with better design, construction, testing and commissioning methods. The project report will serve as an important reference document as efforts move forward to improve the quality of building envelope systems.

Prepared by Gary Proskiw, Proskiw Engineering Ltd. and Bert Phillips, Unies Ltd. CMHC Project Officer: Duncan Hill. Ottawa: Canada Mortgage and Housing Corporation, 2001. 85 pages

STATUS : New Completed Report
AVAILABILITY : Canadian Housing Information Centre

ALTERNATIVE HOME ENERGY SOURCES FOR THE NORTH

This is a partnership project between Alaska Housing Finance Corporation, Arctic Energy Alliance and CMHC. Access to alternate energy in the North was an important issue identified in the 1998 Client Consultation. While much literature exists on alternative home energy sources, most of it is too complex for general comprehension. Further, much of this information has not been verified for applicability to the North including availability and performance of alternative energy products in the North. This project will provide a full summation of options, a cost benefit analysis based upon present individual utility infrastructures and costs as well as regional climatic requirements, reference and contact information. The final report will be available in the Summer of 2001.

CMHC Project Officer : *Aleta Fowler*
Division : Research Division
AVAILABILITY : Publication is not available

CIDN : 2312 0200003
STATUS : Ongoing Project

ANALYSIS OF THE IMPACT OF ENERGY EFFICIENCY MEASURES IN MULTI-UNIT RESIDENTIAL BUILDINGS

An energy and greenhouse gas emission simulator will be developed to model the impacts of energy efficiency measures on large buildings. The energy simulator will be capable of analyzing the impact of individual, or packages of, energy efficiency measures on the energy consumption and green house gas emissions of large commercial and multi-unit residential buildings. Regional and national energy and green house gas emission reductions will be assessed by using the simulator to evaluate the impact of energy efficiency measures on the buildings in a representative building database. The results of the analysis will then be projected to national levels to determine the extent of retrofit measures that are required within the building stock to meet the reduction targets set by the Kyoto Protocol in December 1997.

CMHC Project Officer : *Duncan Hill*
Division : Research Division
AVAILABILITY : Publication is not available

CIDN : 2249 0200001
STATUS : Ongoing Project

CASE STUDIES OF MAJOR HOME ENERGY RETROFITS

To meet targets for greenhouse gas production in Canada, the residential sector will have to significantly reduce energy consumption in existing houses. A 1995 CMHC report suggested that houses built prior to 1989 will have to reduce energy consumption on average by about 40%. This is a big reduction, one that is rarely realized in programs funded by government or the utilities. The object of this research is to see whether four or more relatively normal houses can have their total energy usage reduced by 40%. Saskatchewan Research Council has been hired to determine this. The houses have been selected and the retrofits contracted by the owner should be completed by summer 2001 and monitoring for a year will establish whether the 40 % goal can be achieved.

CMHC Project Officer : *Don Fugler*
Division : Research Division
AVAILABILITY : Publication is not available

CIDN : 2349 0200001
STATUS : New Project

ENERGY EFFICIENCY CASE STUDIES OF MULTI-UNIT RESIDENTIAL BUILDINGS

CMHC is in the process of documenting the application of energy efficiency measures in multi-unit residential buildings to be used as case studies. A trial case study of a housing co-operative in Ottawa is underway, to not only assess the strengths and weaknesses of the energy efficiency measures implemented, but also to identify what information can be disseminated to others in the building industry. Upon completion of this first case study, CMHC will be soliciting the housing industry for additional energy efficiency case studies. A compendium of case studies will be made available from CMHC. The case studies will also support the Energy Efficiency Opportunities Manual for Multi-Unit Residential Buildings that CMHC is in the process of developing. The case studies currently underway include:

1. Conservation Co-op, Ottawa
2. Dual Fuel Heating System, Oshawa
3. Energy Efficiency Retrofit of an Apartment Building, Toronto
4. Case Studies of Interior Insulation Retrofits in Buildings with Solid Masonry Walls (CMHC "A" Building, Ottawa; Lofts Corticelli, Montréal; Karcher Building, Prince Albert)
5. The Complete Rehabilitation of the Broadview Apartment building.

CMHC Project Officer : *Duncan Hill*
Division : Research Division
AVAILABILITY : Publication is not available

CIDN : 1899 0200002-3
STATUS : Ongoing Project

ENERGY EFFICIENCY OPPORTUNITIES MANUAL FOR MULTI-UNIT RESIDENTIAL BUILDINGS

CMHC, in partnership with the Ontario Ministry of Municipal Affairs and Housing (OMMAH), is in the process of developing a manual that details energy and water efficiency measures for existing multi-unit residential buildings. The document will be based on a manual originally developed by the Ontario Ministry of Housing in the early 1980's. The new manual will offer proven, current energy efficiency measures for the building envelope, mechanical, electrical, and domestic hot water heating systems. A web-based version of the manual is being developed that will be installed on the CMHC web-site. Individual energy and water efficiency measures are being placed on the high-rise group website as they are developed. The measures are being publicized as the energy and water efficiency "Tip of the Week" (http://www.cmhc-schl.gc.ca/rd-dr/en/hr-trs/tipsweekly.htm). The production of the web-based, and translated, version has also allowed for a simultaneous final editing of the manual in preparation for publication.

CMHC Project Officer : *Duncan Hill*
Division : Research Division
AVAILABILITY : Publication is not available

CIDN : 1887 0200002
STATUS : Ongoing Project

ENERGY USE PATTERNS OF OFF-GRID HOUSES

In support of housing sector opportunities to reduce greenhouse gas, a contractor surveyed twelve households across Canada which have been 'off the grid' for at least two years, with a focus on renewable energy sources such as solar, wind, and micro/minihydro. The contractor documented energy use and lifestyle patterns that accommodated the limits of off-grid electrical production. The objective is to provide examples of approaches relevant to mainstream housing. The field work is complete and the report is in production.

CMHC Project Officer : *Don Fugler*
Division : Research Division
AVAILABILITY : Publication is not available

CIDN : 2350 0200001
STATUS : New Project

FINANCIAL TOOLS FOR CO2 REDUCTION

This project responds to Canada's planned Kyoto commitment to take actions that will help reduce CO2 emissions. It aims to identify financial mechanisms that can encourage and accelerate the adoption of energy efficiency measures for existing and new housing. It will survey financial mechanisms that have been used in Canada and abroad and evaluate their potential for take up and energy use reduction. It will examine in more depth six initiatives and draw from them lessons that would apply to Canada's conditions. It will subsequently examine a number of initiatives for further consideration re: potential adoption and/or adaption in Canada.

CMHC Project Officer : *Fanis Grammenos*
Division : Research Division
AVAILABILITY : Publication is not available

CIDN : 2281 0200001
STATUS : Ongoing Project

OPTIMIZING HEAT AND AIR DISTRIBUTION SYSTEMS WHEN RETROFITTING HOUSES FOR ENERGY EFFICIENCY

When a house undergoes energy upgrading, either by improving the envelope or the heating system, one factor often overlooked is the heating or ventilating distribution system. With support from the Program for Energy Research and Development (PERD), CMHC will be undertaking research into distribution system upgrades, probably in conjunction with other federal agencies. The first stage of this work is a review of the performance characteristics of current and innovative distribution systems. The project would start by establishing the operating characteristics of HVAC equipment and distribution systems. This would include both old, existing systems; current, off-the-shelf components; and new distribution systems coming on the market. As well, this review would identify problems with the integration of upgraded heating or cooling systems and existing energy distribution systems in houses. The output of this project would help guide the next phases of the work: laboratory studies, field studies, and demonstrations.

CMHC Project Officer : *Don Fugler* **CIDN** : 2440 0200001

Division : Research Division **STATUS** : New Project

AVAILABILITY : Publication is not available

RETROFITTING A CITY - LESSONS FROM TORONTO'S BETTER BUILDINGS PARTNERSHIP PROGRAM

The primary goal of this project is to help municipalities across North America improve energy efficiency in buildings and reduce their greenhouse gas emissions. Based on Toronto's successful Better Buildings Partnership Program the project will produce a useable manual for designing and implementing municipal building retrofit programs to improve water and energy efficiency. Building retrofits can reduce greenhouse gas emissions by lowering energy consumption. Undertaken on a wide scale, retrofitting buildings can enhance the sustainability of urban centres by diminishing air pollution locally and slowing the rate of consumption of natural resources.

CMHC Project Officer : *Brian Eames* **CIDN** : 2355 0200001

Division : Research Division **STATUS** : New Project

AVAILABILITY : Publication is not available

SURVEY OF MULTI-UNIT RESIDENTIAL BUILDING CHARACTERISTICS AND ENERGY USE DATA

This project involves the collection of the physical and operational characteristics of 40 multi-unit residential buildings from all regions in Canada. Energy and water consumption histories for the past 2 to 3 years have also been collected for each building. The survey portion of this work is now complete. CMHC is in the process of developing a database to store the building files and to allow for the comparison of energy and water usage given building age, size, region, fuel type and occupancy. The building files will also be used in combination with an energy simulator-green house gas estimator to estimate the impact of upgrading the stock of multi-unit residential buildings in Canada. It is envisioned that the database will be supplemented with additional buildings that CMHC will access in the course of other research projects.

CMHC Project Officer : *Duncan Hill* **CIDN** : 2249 0200002

Division : Research Division **STATUS** : Ongoing Project

AVAILABILITY : Publication is not available

CLEANING UP YOUR HOUSE AFTER A FIRE

After a Fire is a consumer publication being prepared to help homeowners deal with fire damage in their homes. This publication will explain the issues to be considered to restore the home and to ensure a safe, healthy environment for the occupants. It is intended to be a brief publication targeted to the consumer, but it will also be useful to fire departments, restoration contractors, and insurance companies.

CMHC Project Officer : *Ken Ruest*
CIDN : 2298 0200001
Division : Research Division
STATUS : Ongoing Project
AVAILABILITY : Publication is not available

FIRE SAFETY FOR INFILL CONSTRUCTION SITES

As a result of a large fire in Ottawa's Glebe community ($6 million in damage and 40 homeless) which started in infill housing under construction, the City of Ottawa and CMHC undertook a review of possible Building Code or Bylaw changes governing infill projects during construction. The study reviewed the potential fire risks in early phases of construction and the range of measures that could be employed to mitigate these risks and/or enhance early detection and response. The adequacy of current regulations to address the underlying issues that contributed to this extensive loss were examined. The wording for a proposed bylaw was developed to reduce the risk from such fires affecting adjacent buildings and endangering the occupants of those buildings.

CMHC Project Officer : *Brian Eames*
CIDN : 2423 0200001
Division : Research Division
STATUS : New Project
AVAILABILITY : Publication is not available

INVESTIGATION OF SMOKE CONTROL IN HIGH-RISES BY POSITIVE PRESSURE VENTILATION

A research project has been initiated to study the use of positive pressure ventilation (PPV) systems to contain and expel smoke from high-rise buildings during a fire emergency. PPV systems have been used in the U.S. in low-rise buildings. The system consists of a portable, high velocity fan which is used by the fire department to clear smoke from buildings in order to facilitate access to the fire and to aid in occupant evacuation. Preliminary studies have been conducted in multi-unit residential buildings but not in cold climates where stack effect may continue to dominate smoke movement. The research program is the result of a joint venture between CMHC, the City of Ottawa Fire Department and the Fire Laboratory of the Institute for Research in Construction of NRC. The ability of PPV to contain and clear smoke from exitways in high-rise buildings will be evaluated at the Fire Laboratory's full scale test building under both summer and winter conditions. If successful, PPV may offer Fire Departments an effective, lower cost, life and property saving tool.

CMHC Project Officer : *Duncan Hill*
CIDN : 1983 0200002
Division : Research Division
STATUS : Ongoing Project
AVAILABILITY : Publication is not available

ASSESSING THE PARAMETERS FOR VENTILATION SYSTEMS IN MULTI-UNIT RESIDENTIAL BUILDINGS

This research project will determine the ventilation requirements for apartments. Equipment and systems will be evaluated in their ability to meet such requirements in the context of building design, occupancy type and recent experiences in the application of ventilation systems in multi-unit residential buildings. Design and installation recommendations will be created for use by building designers. Technology gaps (e.g.; the absence of appropriate equipment) will also be identified for the benefit of future research and development efforts.

CMHC Project Officer : *Duncan Hill*
Division : Research Division
AVAILABILITY : Publication is not available

CIDN : 2271 0200001
STATUS : Ongoing Project

CHARACTERIZATION OF AIR LEAKAGE, PRESSURE REGIMES AND RESULTANT AIR MOVEMENT IN HIGH-RISE RESIDENTIAL BUILDINGS

The objective of this project is to undertake a field investigation of the ventilation and infiltration in a residential high-rise building. CMHC, in cooperation with the Institute of Research in Construction, will monitor indoor-outdoor air pressure regimes in a high-rise for a period of one year. Ventilation system performance will also be assessed. Pressure regime measurements, in conjunction with measured air leakage characteristics of selected assemblies, will be used to estimate real-time air movement across the building envelope. This information will add to the body of knowledge governing infiltration-ventilation regimes and resultant heat load calculations in buildings.

CMHC Project Officer : *Duncan Hill*
Division : Research Division
AVAILABILITY : Publication is not available

CIDN : 1934 0200005
STATUS : Ongoing Project

CMHC GARBAGE BAG AIRFLOW TEST. ABOUT YOUR HOUSE; CE33

It is difficult for householders or small contractors to estimate airflows in the home. Suitable measuring equipment is not available for householder's use and the airflow test equipment available for contractors is relatively expensive and unwieldy. One alternative test method is to time the inflation of a garbage bag to estimate duct flow. The flow vs time characteristic was approximately established by CMHC research over ten years ago. This research has refined and extended the garbage bag air flow test procedure. This About Your House document has been prepared on how to do the test. The test, while somewhat crude, is a good indicator of flow for both householders and contractors.

Ottawa: Canada Mortgage and Housing Corporation, 2001. 2 pages.

Order Number: 62288

STATUS : New Completed Report
AVAILABILITY : CMHC Information Products and available on the Internet:
http://www.cmhc-schl.gc.ca/en/burema/gesein/abhose/index.cfm

DAWSON CITY DEMONSTRATION PROJECT - MONITORING

The objective of this project is to evaluate the state of the mechanical and monitoring system, conduct an on-site inspection in Dawson City and develop a proposal for monitoring and analysing the system's performance.

CMHC Project Officer : *Mark Holzman*
Division : Research Division
AVAILABILITY : Publication is not available

CIDN : 1676 0300005
STATUS : Ongoing Project

NORTHERN HEATING AND VENTILATION SYSTEMS

The North lacks sufficient ventilation in many of its residential buildings which result in shortened building lifespans and negative health impacts on the occupants. There are known Northern ventilation options - some documented and tested to a greater extent than others. Existing ventilation systems need to be evaluated for appropriateness for use in new construction and renovation in the varied climatic regions of the North (Labrador, Nunavik, Nunavut, NWT and Yukon), and information on new or better options needs to be identified. This study will produce a single, simple, but comprehensive document outlining ventilation options to enable communities, homeowners, builders and renovators to make informed choices.

CMHC Project Officer : *Aleta Fowler*
Division : Research Division
AVAILABILITY : Publication is not available

CIDN : 2420 0200001
STATUS : New Project

PART-LOAD AND FROSTING CONTROL FOR ROTARY ENERGY WHEELS USED IN RESIDENTIAL BUILDINGS

The objective of this research is to determine the performance of rotary energy wheels, also called enthalpy wheels, for ventilation air exchange in residential buildings while subjected to a wide range of operating conditions.

CMHC Project Officer : *Duncan Hill*
Division : External Research Program
Grant Recipient : Robert W. Besant
Dept. of Mechanical Engineering, University of Saskatchewan
57 Campus Drive
Saskatoon, Saskatchewan S7N 5A9
AVAILABILITY : Publication is not available

CIDN : 2007 0200001
STATUS : Ongoing Project

PERFORMANCE ASSESSMENT OF THE LEBRETON FLATS DISTRICT HEATING SYSTEM.

The Lebreton Flats district heating system, installed 20 years ago, is one of few examples of low temperature district heating systems in North America. The availability of fuel consumption and maintenance records for the system allows for an assessment of the performance of the system over the last 20 year period. It will also allow for a comparison of the district system with more conventional heating system options. Monitoring will be undertaken to assess the performance of the plant. Recommendations regarding system performance, potential upgrades and future operation, maintenance needs and other ownership/management arrangements will be made.

CMHC Project Officer : *Duncan Hill*

Division : Research Division

AVAILABILITY : Publication is not available

CIDN : 2134 0200001

STATUS : Ongoing Project

REDUCTION OF AIR INTAKE CONTAMINATION OF HIGH-RISE RESIDENTIAL BUILDINGS (ERP)

In the study, entitled, 'Reduction of Air Intake Contamination of High-Rise Residential Buildings', buildings will be tested to determine optimal placement of air intake grilles for HVAC systems. The placement determination will be based on water flume tests and modeling of air movement around high-rise buildings given confounding factors such as the height and proximity of neighboring buildings. A literature survey of relevant research on air intake grille location and contamination potential will also be performed.

CMHC Project Officer : *Duncan Hill*

Division : External Research Program

AVAILABILITY : Publication is not available

CIDN : 2305 0200009

STATUS : New Project

THERMOSTAT SURVEY OF HOUSES WITH HYDRONIC, IN-FLOOR HEATING

This project surveyed survey 50 homes with hydronic in-floor heating and 25 control homes to determine if houses with in-floor heating have lower thermostat settings than those of houses with other types of heating systems. Lower home temperatures would reduce energy consumption. Sales literature for hydronic heating sometimes makes this claim. The field work revealed that houses with in-floor hydronic heating have thermostat settings similar to houses with other heating systems, and that there are no energy savings that can be attributed to lower thermostat settings for hydronic in-floor heating.

CMHC Project Officer : *Don Fugler*

Division : Research Division

AVAILABILITY : Publication is not available

CIDN : 2396 0200003

STATUS : Ongoing Project

HIGH-RISE AND MULTIPLE UNIT CONSTRUCTION

BC MOISTURE PROBLEMS - ENVELOPE DRYING RATES EXPERIMENT

Findings from the 'Survey of Building Envelope Failures in the Coastal Climate of British Columbia' revealed that the construction of walls with face seal or concealed barrier systems does not promote rapid drying of wall assemblies once the moisture has saturated the moisture barrier and passed into the sheathing. The solution to promote drying of the wall assembly has been to introduce an air cavity behind the claddings. The objective of this project is to identify, through laboratory work, a range of cavity and vent configurations which will provide wall drying capability characteristics necessary to deal with the coastal British Columbia climate. In addition to the vents, the effect of insulation, vapour barrier, type of building paper and type of cladding will be investigated. A draft report is being reviewed by the steering committee. The final report will be available early in 2001.

CMHC Project Officer : *Mark Salerno, Silvio Plescia*
Division : Research Division
AVAILABILITY : Publication is not available

CIDN : 1816 0300009
STATUS : Ongoing Project

BEST PRACTICE GUIDE - FIRE AND SOUND ASSEMBLIES FOR MULTI-FAMILY BUILDINGS

This document, targeted at designers of multi-family buildings, will provide the latest information on CMHC research into fire and sound partitions, floors, flanking, plumbing noise, etc. Construction details for fire and sound assemblies will be detailed. The document is being produced in collaboration with the NRC/IRC.

CMHC Project Officer : *Ken Ruest*
Division : Research Division
AVAILABILITY : Publication is not available

CIDN : 1804 0200003
STATUS : Ongoing Project

BEST PRACTICE GUIDE - WOOD FRAME ENVELOPES IN COASTAL CLIMATES OF BRITISH COLUMBIA

To revise the best practice guide - wood frame envelopes in coastal climates of British Columbia. A steering committee has been formed to recommend and evaluate the changes to the BPG. A consultant has also been retained to draft the changes. The changes have been received and will be circulated to the steering committee for approval.

CMHC Project Officer : *Jacques Rousseau*
Division : Research Division
AVAILABILITY : Publication is not available

CIDN : 2378 0200002
STATUS : New Project

BEST PRACTICE GUIDE FOR CURTAIN WALLS

The objective of this project is to develop a practical, advisory document for designers, architects and engineers, and manufacturers, related to curtain wall systems in housing applications. The curtain-wall is a well developed system in commercial applications but it requires special treatment when used in housing. The project will be conducted in partnership with curtain wall manufacturers and installers and their associations. This Guide will be produced as a joint publication through a collaborative project with Public Works Government Services Canada. The Guide, produced in hard copy and CD-ROM format, will address: pertinent building science with emphasis given to aspects particular to curtain walls, construction details in AutoCAD format, outline specifications and additional sources of information and references. The anticipated release date for the product is October 2001.

CMHC Project Officer : *Luis de Miguel*
Division : Research Division
AVAILABILITY : Publication is not available

CIDN : 2216 0200001
STATUS : New Project

BEST PRACTICE GUIDE FOR EXTERIOR INSULATED FINISHED SYSTEMS (EIFS)

The objective of this project is to develop a practical, advisory document for designers, architects and engineers, and manufacturers, related to EIFS in residential applications. The project will be conducted in partnership with EIFS manufacturers and installers and their associations. This Guide will be produced as a joint publication through a collaborative project with the EIFS Council of Canada and the BC Wall and Ceiling Association. The Guide, produced in hard copy and CD-ROM format, will address: pertinent building science with emphasis given to aspects particular to EIFS, construction details in AutoCAD format, outline specifications and additional sources of information and references.
Anticipated release date is October 2001.

CMHC Project Officer : *Luis de Miguel*
Division : Research Division
AVAILABILITY : Publication is not available

CIDN : 2047 0200001
STATUS : Ongoing Project

BETTER BUILDING GUIDE TO INNOVATION IN THE DESIGN AND CONSTRUCTION OF HIGH-RISE RESIDENTIAL BUILDINGS

The objective of this project is to coordinate and edit the work relating to updating the "Better Building Guide to Innovation in the Design and Construction of High-Rise Residential Buildings" and to update the text, references and illustrations of the following four sections: Enhancing Envelope Design, Enhancing Energy Performance, Enhancing Indoor Air Quality and Enhancing Environmental Performance.

CMHC Project Officer : *Sandra Marshall*
Division : Research Division
AVAILABILITY : Publication is not available

CIDN : 0840 0306020
STATUS : New Project

BREEAM GREEN LEAF ECO-RATING PROGRAM: CMHC MULTI-RESIDENTIAL BUILDINGS ASSESSMENT PILOT: FINAL REPORT

There are many reasons for measuring the environmental performance of buildings, chief among them being that it can help building owners decide where to put their retrofit dollars to improve their buildings and reduce operating costs.

BREEAM/Green Leaf is an environmental assessment protocol that was developed in response to the need in the marketplace for a less expensive methodology that could be partially conducted in-house. This makes it an appropriate introductory whole-building, comprehensive energy and environmental assessment for managers of multi-residential buildings. The assessment is based on an investigation of building performance and management practices by use of a checklist and walk-through survey. The data is then used to generate a report, which provides a building rating and a list of recommendations to improve the building and management performance. The methodology originated in Canada and was developed by ECD Energy and Environment Canada and Terra Choice. It combined the BREEAM set of environmental issues with the Green Leaf Eco-Rating procedure.

CMHC commissioned the environmental assessment of six high-rise multi-residential buildings, using the BREEAM Green Leaf assessment methodology. The objectives of the pilot were:
- To find out how well the six buildings apply healthy housing principles
- To obtain client feedback on environmental issues, including healthy housing principles.
- To obtain client feedback on the value of the environmental assessment.
- To find ways to better reflect healthy housing principles in the assessment methodology.

Six detailed, individual building assessment reports were undertaken. This report summarizes the results of the findings and the user survey.

Prepared by ECD Energy and Environment Canada Ltd. CMHC Project Officer: Sandra Marshall. Ottawa: Canada Mortgage and Housing Corporation, 2001. 55 pages

STATUS : New Completed Report
AVAILABILITY : Canadian Housing Information Centre

BRITISH COLUMBIA HIGH-RISE ENVELOPE DETAILS STUDY

In recent years, there have been significant efforts to understand and resolve moisture ingress and deterioration problems associated with wood-framed, low-rise building construction. Currently, this problem is acute in some wood-frame condominiums in the Lower Mainland of British Columbia. There are indications that the high-rise stock may also be experiencing similar moisture problems. The objective of this project is to examine the files of a sample of approximately forty buildings to assess whether the high-rise stock in the coastal climate of lower mainland BC is experiencing significant moisture related problems. The project will not estimate the extent of a potential problem. The project will focus specifically on envelope details and envelope systems that have failed, rather than building failures. Envelope types and components under review will include window/wall assemblies and light-gauge steel stud (back-up) wall assemblies with stucco, masonry and EIFS cladding systems. The work is scheduled for completion in the summer of 2001.

CMHC Project Officer : *Mark Salerno, Silvio Plescia*
Division : Research Division
AVAILABILITY : Publication is not available

CIDN : 2234 0200
STATUS : Ongoing Project

BUILDING ENVELOPE TEST HUT IN VANCOUVER B.C.- FEASIBILITY STUDY

Building envelope failures in the wet coastal climate of British Columbia along with a rising rate of moisture failures worldwide, require prompt attention to understanding causes and finding solutions. A Building Envelope Test Hut is proposed as a means to evaluate and understand the performance of claddings and exterior wall systems in the 'real' coastal climate conditions of the BC lower mainland and to identify construction practices, techniques and technologies, allowing for cost-effective long-term durability and performance of the exterior envelope. The objective of this project is to undertake a study to evaluate the feasibility of building, operating and maintaining a research test facility in Vancouver and to identify organizations/institutions interested in championing this research facility. This is a joint venture between Canada Mortgage and Housing Corporation and the Homeowner Protection Office.

CMHC Project Officer : *Silvio Plescia*
Division : Research Division
AVAILABILITY : Publication is not yet available

CIDN : 2384 0200001
STATUS : Completed

BUILDING FAILURES UPDATE 2000 - HIGH-RISE CONDOMINIUMS STUDIES

The purpose of this project is to provide CMHC with information (text, photos and drawings) to document building failures in high-rise condominium buildings in Ontario. The report will tabulate and compare findings from the CMHC/ONHWP 1990 document 'Construction Problems in Multi-family Residential Buildings'.

CMHC Project Officer : *Luis de Miguel*
Division : Research Division
AVAILABILITY : Publication is not available

CIDN : 1782 0300022
STATUS : New Project

CASE STUDY OF A SUCCESSFUL INNOVATIVE MULTI-UNIT RESIDENTIAL BUILDING: A COMPENDIUM OF RESEARCH OF THE CONSERVATION CO-OP BUILDING

In 1995, a multi-unit residential building, the Conservation Co-op, was constructed that embodied as many environmentally sound concepts and technologies as was possible within the confines of an extremely tight budget. The objective of the development team was to provide affordable housing with minimal environmental impact, enhanced durability and superior occupant health and comfort. After five full years of occupancy, Canada Mortgage and Housing Corporation initiated a review of the performance of the building, particularly with respect to energy and water consumption, indoor air quality and the operational experience with many of the "green" innovations included in the building. The review revealed that the enhanced insulation levels, high efficiency space and domestic hot water heating appliances, low E windows, and heat recovery ventilation were economically sound choices. It also illustrated the costs associated with continuous ventilation strategies and the need for more efficient fan-motor set technologies and distribution systems. Many of the "green" features met, or exceeded expectations while others failed altogether. Overall, the building is a successful project as it managed to incorporate many environmentally sound design and construction practices and its experiences are readily available to others considering similar projects.

This compendium contains the research projects conducted to assess the performance of the Conservation Co-op and the degree to which the original goals of the project were met. The research reports contained herein document annual operating energy and water use, embodied energy, and water reclamation efforts. The Compendium is prefaced with a summary paper that documents all of the innovative aspects of the building and provides an overview of the projects successes and where improvements could be made. Further information is also available on the CMHC's web site www.cmhc-schl.gc.ca/research/highrise under the title Building Innovation.

Compiled by Duncan Hill, Research Division, Canada Mortgage and Housing Corporation. Ottawa: CMHC, 2001.

STATUS : New Completed Report
AVAILABILITY : Canadian Housing Information Centre

CHARACTERIZATION OF THE STOCK OF CONDOMINIUM BUILDINGS IN CANADA

The number and characteristics of condominiums in Canada are unknown. This project will review Statistics Canada data files to estimate the number of condominiums in Canada, their location, age, number of stories and number of suites. This information will be used to supplement the CMHC Rental Market Survey in order to estimate the overall population of multi-unit residential buildings in Canada. This information will also be used to determine the data requirements for a database of multi-unit buildings that describes the physical characteristics and energy consumption patterns of this class of buildings. Such a database is necessary to establish energy retrofit guidelines for multi-unit residential buildings.

The review by STATSCAN has found that the number of condominium buildings in Canada may be determined through building permit information available from STATSCAN files since 1970. STATSCAN is in the process of compiling this information to estimate the condominium building population.

CMHC Project Officer : *Duncan Hill*
Division : Research Division
AVAILABILITY : Publication is not available

CIDN : 2277 0200001
STATUS : Ongoing Project

CONDITION SURVEY OF CONDOMINIUMS IN THE GREATER TORONTO AREA (GTA)

This project's objective is to carry out a condition survey of condominiums in the Greater Toronto Area. This project will be carried out in two phases. Phase 1 focuses primarily on data collection and development of research methodologies for examining topics related to both physical and social issues. Phase 2 focuses on conducting the surveys and completing the analysis of the state of repair of the buildings.

CMHC Project Officer : *Sandra Marshall*
Division : Research Division
AVAILABILITY : Publication is not available

CIDN : 2161 0200002
STATUS : New Project

CONVERSION OF HIGH-RISE BUILDINGS TO RESIDENTIAL USE

The project will survey design and construction professionals and property managers of existing converted buildings across Canada to determine the extent and nature of technical problems which were encountered in the design and construction phases of the conversions; to determine the perception of property managers as to the concerns of the occupants; to determine the technical problems which have arisen as a result of these conversions; and to determine if there were any attempts to improve energy use performance or to introduce features to improve the sustainability of these buildings. Selected building would be documented as case studies in CMHC's Better Buildings/Innovative Buildings information series. The research report on this study is expected to be completed in 2001.

CMHC Project Officer : *Sandra Marshall*
Division : Research Division
AVAILABILITY : Publication is not available

CIDN : 2397 0200
STATUS : Ongoing Project

CONVERSION OF NON-RESIDENTIAL BUILDINGS TO MULTI-RESIDENTIAL USE

This cross Canada study is investigating the technical problems relating to the conversion of non-residential buildings to residential use. It will also address the issues which influence affordability in conversions to affordable housing indicating their potential to impede or encourage this housing. Case studies will be developed to show how these technical issues were overcome, with cost breakdowns.

CMHC Project Officer : *Sandra Marshall*
Division : Research Division
AVAILABILITY : Publication is not available

CIDN : 2242 0200001
STATUS : New Project

FIRE AND ACOUSTICAL PERFORMANCE OF FLOOR ASSEMBLIES - PHASE II

A continuation of an earlier project, this phase will be carried out over 4 years with a total budget of $2.2 million. A dozen industry and government partners have formed a consortium with the National Research Council of Canada to complete testing of several types of assemblies for residential construction. Results will be incorporated in the National Building Code of Canada. Both full and small scale fire and sound testing will be carried out. A large database will be developed which designers and builders can use for reference. Particular attention will be given to assemblies likely to just obtain an STC 50 rating.

CMHC Project Officer : *Luis de Miguel*
Division : Research Division
AVAILABILITY : Publication is not available

CIDN : 2375 0200001
STATUS : New Project

HIGH-RISE RENTAL RETROFIT COSTS AND IMPACTS

The recently completed assessment of repair needs for high-rise rental apartments in York and Toronto showed that about 9% of apartment buildings can expect very high repair costs. With the City of Toronto, this study would look at the problems faced by the owners and occupants of these buildings with high-cost-to-repair to determine the factors which have led to these incipient high repair costs and to propose possible avenues of resolution to these burdens. Examples of buildings which have had to deal with these problems will be sought as case studies. It is expected that the study will provide property managers with evaluation tools to improve their understanding of conflicting durability and financial constraints. The study is scheduled for completion by the end of 2001.

CMHC Project Officer : *Sandra Marshall*
Division : Research Division
AVAILABILITY : Publication is not available

CIDN : 2231 0200
STATUS : Planned

IDEAS HIGH-RISE CHALLENGE

The IDEAS Challenge is intended to demonstrate the benefits of innovative design and technology in the operation of high-rise residential buildings. The Challenge focuses on five aspects of building design: envelope durability, energy efficiency, indoor air quality, environmental conservation and accessibility. One project in Montreal is built and monitoring is being carried out. Acoustic details have been tested. Two booklets are available, one that describes the IDEAS Challenge and the features of the five finalist projects and another which is a "Better Building" guide to innovation in the design and construction of high-rise residential buildings. The design process of a building in Dundas, Ontario which is exploring the adaptation of the IDEAS Challenge goals and details of CMHC's Best Practice Guide, is being documented. A project in Edmonton is also ongoing.

CMHC Project Officer : *Sandra Marshall*
Division : Research Division
AVAILABILITY : Publication is not available

CIDN : 0840 0300
STATUS : Ongoing Project

IN-SITU MONITORING OF EXTERIOR WALL ASSEMBLIES - MONTREUX RESIDENCES

This project's objective is to monitor the performance of the exterior wall assemblies at the building complex, known as Montreux Residences, for temperature, relative humidity, moisture content and air pressure differentials.

CMHC Project Officer : *Silvio Plescia*
Division : Research Division
AVAILABILITY : Publication is not available

CIDN : 2254 0200001
STATUS : New Project

IN-SITU PERFORMANCE OF THE EXTERIOR WALL SYSTEM

The objective of this project is to monitor, assess and document the performance of a residential low-rise, wood-framed development which incorporates rainscreen design technology, to analyze data to determine the effectiveness of wood frame rainscreen wall assemblies and to identify the relative performance of building envelope features that provide improved performance or minimizes the risk of envelope problems.

CMHC Project Officer : *Silvio Plescia*
Division : Research Division
AVAILABILITY : Publication is not available

CIDN : 2254 0200002
STATUS : New Project

INVESTIGATION PROTOCOL FOR EVALUATION OF POST-TENSIONED BUILDINGS

The scope of work will consist of soliciting input from stakeholders, exchange of test results obtained to date and development of a protocol to assist in planning and execution of post-tensioned building assessments.

CMHC Project Officer : *Silvio Plescia*
Division : External Research Program
AVAILABILITY : Publication is not available

CIDN : 2305 0200015
STATUS : New Project

LEAK-PROOFING WINDOWS, PHASE I - FABRICATION, INSTALLATION AND MAINTENANCE

The Survey of Building Envelope Failures in the Coastal Climate of British Columbia revealed that exterior moisture penetration through and/or around windows (at window wall interfaces) is a significant contributor to the envelope moisture problem. The objective of this project is to undertake a study which identifies the nature and causes of moisture ingress problems associated with windows and window to wall interfaces. The study will identify and recommend solutions for addressing water penetration problems associated with all aspects of the window manufacturing, design, installation and in-service maintenance.

CMHC Project Officer : *Silvio Plescia*
Division : Research Division
AVAILABILITY : Publication is not available

CIDN : 2285 0200001
STATUS : New Project

LEAK-PROOFING WINDOWS, PHASE II - A REVIEW OF STANDARDS TESTING AND CERTIFICATION

The Survey of Building Envelope Failures in the Coastal Climate of British Columbia revealed that exterior moisture penetration through and/or around windows (at window wall interfaces) is a significant contributor to the envelope moisture problem. This objective of this research project will be to conduct a detailed review of the Canadian Window Standard CSA A440, together with all its attachments, to review the test requirements related to moisture penetration as outlined in the standards, and to review, assess and evaluate the window certification programs and processes. This research project will identify recommended solutions and opportunities for alleviating these moisture problems into the wall assembly from the window/wall interface.

The Canadian Window Standards Committee is considering the adoption of and harmonizing with the North American Fenestration Standards (NAFS). This project will also attempt to consolidate the affects that NAFS may have on the performance of windows if adopted by the window standards committee.

CMHC Project Officer : *Silvio Plescia*
Division : Research Division
AVAILABILITY : Publication is not available

CIDN : 2425 0200001
STATUS : New Project

LOAD PROFILES IN MULTI-UNIT RESIDENTIAL BUILDINGS: PILOT STUDY ON LOAD PROFILING IN METRO TORONTO HOUSING

This project will describe load profiling work underway in Metro Toronto Housing Corporation multi-unit residential buildings. The project will characterize thermal, electrical power and water requirements in the apartment buildings and will also identify technical issues encountered in load monitoring and data interpretation. This project is being used as a pilot project to identify the factors that will have to be considered in a larger project being planned by CMHC and Natural Resources Canada to assess the energy and water load profiles in low and high-rise housing.

CMHC Project Officer : *Duncan Hill*
Division : Research Division
AVAILABILITY : Publication is not available

CIDN : 2201 0200001
STATUS : New Project

MODELING OF AIR/MOISTURE MOVEMENT AND DURABILITY PERFORMANCE OF RESIDENTIAL AND COMMERCIAL BUILDINGS

The purpose of this project is to develop knowledge to assess the impact of various wall design and indoor-outdoor environmental conditions on the durability and energy efficiency of new and retrofitted high-rise residential and commercial building systems. The hygIRC heat, air and moisture model developed by the Institute for Research in Construction is being used to model common wall systems. Retrofits to improve the airtightness and insulation levels in the walls were developed and are being applied to the basic wall systems. The hygIRC model will simulate heat, air and moisture conditions within the retrofitted walls to determine how the retrofits affect the durability of the wall system. This information will be used as a means to confirm the integrity of several specific retrofit measures developed for high-rise wall structures before they are recommended to the building industry.

CMHC Project Officer : *Duncan Hill*
Division : Research Division
AVAILABILITY : Publication is not available

CIDN : 1934 0200003
STATUS : New Project

MONITORING INNOVATIVE MECHANICAL AND ELECTRICAL SYSTEMS

The innovative mechanical and electrical energy producing systems in a multi-unit residential buildings project in Toronto were monitored and assessed to determine their economic viability. The project involved the assessment of the buildings cogeneration, space heating, absorption chilling, domestic hot water and ventilation systems and a review of natural gas and electricity use. The cost of energy provided to the building by the cogeneration system in terms of fuel consumption, maintenance expenditures, avoided electrical use and other considerations was determined. An inspection of the individual space conditioning systems within the suites was also performed. The findings of the investigation showed that the operation costs (fuel use, maintenance and repair) of the cogeneration system was not economically viable. Key findings include the observation that the system was not making full use of the heat generated by the cogeneration systems. The report estimated that even if all of the heat was recovered from the cogeneration system, the benefit of the system to the building's owners would be marginal. Given that the building embodies some of the most advanced technologies that allow for energy efficiency, cascading and recovery, operation costs should have been low relative to conventional buildings.

CMHC coordinated a meeting of the project developer, engineering design team, cogeneration system manufacturer, utility representative and industry experts and stakeholders to review the situation in the building and to determine whether or not the performance of the building systems could be improved. The outcome of the meeting was that a review of the utility meters and billing history should be undertaken to confirm that the basic information being used to assess the performance of the building is correct. CMHC is working with Ontario Hydro Energy and Admic Controls to develop a metering review plan and evaluation.

CMHC Project Officer : *Duncan Hill*
Division : Research Division
AVAILABILITY : Publication is not available

CIDN : 1260 0800001
STATUS : Ongoing Project

MONITORING THE PERFORMANCE OF AN EIFS RETROFIT ON A 15 STOREY APARTMENT BUILDING

Morrison Hershfield Limited was retained by Canada Mortgage and Housing Corporation to monitor the performance of the rehabilitation of a 15-storey, 112-unit apartment complex located in Toronto. A major phase of the rehabilitation involved installation of exterior insulation and finish system (EIFS) rainscreen cladding over the existing brick masonry walls. The monitoring program included analysis of temperature, moisture content and air pressure measured at five locations over a winter season.

The original wall construction was clay brick masonry with concrete block backup, expanded polystyrene insulation, and plaster interior finish. The EIFS cladding consisted of acrylic stucco lamina installed over expanded polystyrene insulation that was adhered to the brick masonry using a trowel-on, proprietary material. The trowel-on material was intended to function as the air barrier and drainage plane. Vertical channels, which were located on the interior face of the insulation, were intended to drain rainwater that penetrated to the coating through drain blocks located every 5 stories.

The project objectives were:

1. To document the development of a building envelope retrofit strategy for a residential high rise building.
2. To monitor, assess and document the performance of a residential high rise building envelope retrofit.
3. To assess the degree to which the monitoring protocol can be implemented as part of regular operation and maintenance activities for new and existing buildings.

4. To assess the potential for the development of a commercially viable, building envelope performance monitoring protocol.

The objective of the monitoring program was to establish the performance of the retrofit wall with respect to heat, air and moisture control.

Prepared by Morrison Hershfield Limited. CMHC Project Officer: Duncan Hill. Ottawa: Canada Mortgage and Housing Corporation, 2000. (70 pages)

STATUS : New Completed Report
AVAILABILITY : Canadian Housing Information Centre

OPERATING AND MAINTENANCE BOOKS FOR MECHANICAL AND ELECTRICAL SYSTEMS IN MULTI-UNIT BUILDINGS

Two publications, currently in 'draft' stage, on improving the operating performance of modern residential building systems have been developed. The first document, for owners and managers, links good operating practices with desirable investment strategies. The second, for building operating and maintenance staff, updates information on mechanical and electrical systems and incorporates preventative maintenance checklists for multi-unit residential buildings.

CMHC Project Officer : *Duncan Hill*
Division : Research Division
AVAILABILITY : Publication is not available

CIDN : 1774 0300004
STATUS : Ongoing Project

PERFORMANCE MONITORING OF A BRICK VENEER/STEEL STUD WALL SYSTEM: PHASE 4 RESULTS: REVISION 1

The Brick veneer/steel stud (BV/SS) wall system has become very popular over the last 20 years, however, the rapid adoption of this wall system has preceded the development of adequate design and construction standards. This situation has led to concerns regarding the long term safety, serviceability and durability of BV/SS wall systems. Therefore, Canada Mortgage and Housing Corporation (CMHC) has been evaluating BV/SS wall systems over the past several years by commissioning studies by various consultants, including Keller Engineering Associates Inc. (KEA).

Phase 4 of this study by KEA involved a fourth year (in 1996 and 1997) of in-situ performance monitoring of a BV/SS wall system, with respect to air and moisture movements as well as temperature gradients. In an attempt to improve venting of the wall cavity, vent holes were cut into every second vertical mortar joint in the top course of the monitored brick veneer section. The performance of a test wall was monitored using various temperature, moisture and air pressure sensors that were connected to an automatic data logging system. Even though the BV/SS wall system is typical of current practices and workmanship was mostly satisfactory, the results of the study demonstrate that performance problems exist that may lead to significant distress over the long term. The more serious performance problems identified in this study are mainly due to design weaknesses, illustrating the need for improved design and construction standards.

Prepared by Keller Engineering Associates Inc. CMHC Project Officer: Jacques Rousseau. Ottawa: Canada Mortgage and Housing Corporation, 2001, c1999. (69 pages)

STATUS : New Completed Report
AVAILABILITY : Canadian Housing Information Centre

PERFORMANCE MONITORING OF AN INNOVATIVE HIGH-RISE RESIDENTIAL BUILDING

A high-rise residential building is being constructed in Dundas, Ontario that will utilize many innovative design strategies, products and systems to improve durability, indoor environment, energy and water efficiency, resource use and environmental impact. In order to assess the cost-benefit of each measure, CMHC, in cooperation with Natural Resources Canada, will be undertaking an extensive year long monitoring program in the building. Energy and water consumption, building envelope, indoor air quality and ventilation system performance will be assessed in order to better understand the technologies adopted in the project. A report will be issued that describes the building project, the individual measures adopted to improve performance, and the impact on the overall performance of the building.

CMHC Project Officer : *Duncan Hill*
Division : Research Division
AVAILABILITY : Publication is not available

CIDN : 1602 0200001
STATUS : Ongoing Project

QUALITY ASSURANCE PROTOCOL TEST DRIVE

"Quality by Design" was commissioned as the Quality Assurance Protocol by Canada Mortgage and Housing Corporation in order to establish a management system for the assurance of quality of the exterior of multi-storey wood frame buildings located in the coastal climate of British Columbia. This is part of the initiatives undertaken by the Building Envelope Research Consortium, of which CMHC is a member, to address the "leaky condo" issue as it pertains to new construction. A Quality Assurance Protocol is a set of recommendations and guidelines which, if followed, will assure an improved level of quality in design, construction and maintenance.

The original "Quality by Design" was published in January 1999. This current edition has been refined extensively based upon ongoing input from a wide variety of sources, and in particular, the document has been refined based upon applying it to a real project.

Prepared by Pro Pacific Architecture Limited. Principal investigators for the project were Brian Palmquist and William A. Gies, assisted by quality systems consultant Arc Rajtar. The "test drive" revisions were prepared by Brain Palmquist. CMHC Project Officers: Jacques Rousseau and Mark Salerno. Ottawa: Canada Mortgage and Housing Corporation, c2000.

STATUS : New Completed Report
AVAILABILITY : Canadian Housing Information Centre

RAIN PENETRATION CONTROL: APPLYING CURRENT KNOWLEDGE

Water is the most significant factor in the premature deterioration of buildings. It can damage some materials directly and reduce the effectiveness of insulation. It is the major factor in the corrosion of metals, the chemical breakdown of many organic materials and the growth of mold and rot. Controlling water penetration, as well as its location, duration and phase (vapour, liquid or solid), is often the most critical factor in achieving long-term performance of a building envelope assembly.

This document focuses primarily on rain penetration control in walls and windows. Other wetting mechanisms include condensation and exposure to ground water. Moisture can be removed from a building assembly through drainage, by diffusion or venting (convective air change) to a drier indoor or outdoor environment. Most building assemblies and materials have some tolerance for infrequent and short duration wetting. Some infrequent passage of water to the inside is a minor inconvenience rather than a disaster. Determining how much effort and expense can be justified to minimize water penetration or evaluating what assembly types are appropriate for a particular building application and location is an exercise in judgment and risk management.

Following a discussion of several approaches to water penetration control in walls, including architectural design, there is a detailed explanation of the rain-screen principle and its application to contemporary buildings. Designers are further challenged to incorporate the Pressure Equalized Rain-screen (PER) principles. The PER system uses compartment seals to divide the cavity into a series of chambers in addition to the elements of a simple rainscreen.
This limits lateral air flow in the cavity and increases pressure equalization, ultimately reducing the amount of water entering the interior wall. Remarkabl, in pressure equalized rainscreen walls or joints, leakage is reduced by making bigger holes in the outside surface. This is counterintuitive.

To help design rainscreen curtain walls CMHC developed the "RainScreen" software. It allows designers to vary the parameters of their rain screen system and graphically see the resulting dynamic pressure distribution on cladding and air barrier (backpan) layers. Its mathematical engine is based on the CMHC report "Rainscreen" by Jacques Rousseau.
"RainScreen 2.1" adds many new features and an easy GUI interface, using either Windows (3.1 or 95) or Macintosh systems.

The "RainScreen v2.1" software may be downloaded free from CMHC at:
ftp://ftp.cmhc-schl.gc.ca/highrise/rainscreen .html.

Ottawa: Canada Mortgage and Housing Corporation, 2001, c1999.

STATUS : New Completed Report
AVAILABILITY : Canadian Housing Information Centre

REMEDIATION OF MOISTURE TROUBLED WOOD FRAMED BUILDINGS IN THE COASTAL CLIMATE OF B.C.

This project researched, conducted and prepared diagnostics and recommended procedures for the cost effective rehabilitation of leaking condominiums in the lower mainland of B.C. The project developed a standard method of damage assessment, and outlines the rehabilitation steps including considerations for technical issues, code compliance, financial implications and practicality of repair. Two documents are being finalized, one for consultants, and the other for property managers and owners of condominiums or multi-unit residential buildings. The project has been completed and a draft of the publication is available.

CMHC Project Officer : *Ken Ruest, Mark Salerno*
CIDN : 2061 0200
Division : Research Division
STATUS : Ongoing Project
AVAILABILITY : Publication is not available

REPAIR AND RETROFIT CASE STUDIES FOR MULTI-UNIT RESIDENTIAL BUILDINGS

CMHC is documenting repair and retrofit activities in multi-unit residential buildings. The first 30 case studies will document building characteristics, the type of problems that prompted the repairs and retrofits, costs, benefits, etc. A wide range of case studies will be included to reflect regional repair and retrofit priorities. The studies will be useful for other members of the multi-unit residential building industry to refer to when considering similar projects. An information template that can be used as a guideline for the type of information that should be extracted from a repair or retrofit project in a multi-unit residential building has been developed. CMHC is currently soliciting the building industry for case studies and will retain consultants to provide the necessary documentation. A compendium of case studies will be assembled and made available.

CMHC Project Officer : *Luis de Miguel*
CIDN : 1782 0300001-7
Division : Research Division
STATUS : Ongoing Project
AVAILABILITY : Publication is not available

REPAIR AND RETROFIT CASE STUDIES OF THE LOFTS CORTICELLI COMPLEX

A field project to review the condition of the solid masonry walls of a historic building in Montréal has been completed. The building, originally constructed in the 1800's, was converted to residential use in 1986. As a part of the renovation, the interior of the solid masonry brick walls was insulated with spray applied polyurethane foam and fibreglass batt insulation. As this type of insulation retrofit was thought to be responsible for the deterioration of solid masonry walls, CMHC initiated a project to assess the condition of the building envelope and all of the elements. The field survey found that the walls, after 14- 15 years of service, were in good condition. No conditions or symptoms were found that would lead to the conclusion that the application of the spray applied polyurethane foam and other finishing materials had, in anyway, undermined the integrity of the wall system. This finding is important as many older buildings in the urban areas of Canada are being renovated to residential use and exterior insulation retrofits are not possible for heritage or aesthetic reasons. While the finding of this study is specific to this one building, it appears that interior insulation wall retrofits may be possible as long as steps are taken to prevent the intrusion of moisture and air leakage from both interior and exterior sources into the wall assembly. Susceptible wall members, such as embedded wood structural members should be protected as well. CMHC will perform additional case studies of retrofitted solid masonry walls to provide a better understanding of the strengths and weaknesses of this form of renovation.

CMHC Project Officer : *Duncan Hill*
Division : Research Division
AVAILABILITY : Publication is not available

CIDN : 1782 0300020
STATUS : Ongoing Project

TECHNOLOGY ROAD MAP FOR INTELLIGENT BUILDINGS TECHNOLOGIES

This objective of this project is to develop a road map for intelligent buildings technologies, considering the potential technological, societal and other developments that will affect the industry within the next five years.

CMHC Project Officer : *Sandra Marshall*
Division : Research Division
AVAILABILITY : Publication is not available

CIDN : 2388 0200001
STATUS : New Project

TESTING OF DYNAMIC BUFFER ZONE (DBF) METHOD

This project's objective is to proceed with testing a Dynamic Buffer Zone (DBZ) method in the air space behind brick cladding. The DBZ consists of introducing mechanically dry, temperate air in the air space behind the brick cladding. The dry air absorbs the condensation and should increase the durability of the wall assembly. The wall will be monitored for a year.

CMHC Project Officer : *Luis de Miguel*
Division : Research Division
AVAILABILITY : Publication is not available

CIDN : 0411 0305002
STATUS : Ongoing Project

HOME OWNERSHIP

TECHNICAL ASPECTS OF SELLING NEW HOMES

The purpose of this initiative is to support a project being managed by the Professional Home Builders Institute of Alberta which is to develop a 12 to 18 hour interactive CD ROM course on "The Technical Aspects of Selling New Homes". The CD ROM course will be based on two existing courses and will include video clips, audio, graphics, text, self-tests and optional exams. The information contained in the CD ROM will be beneficial to home builders' new home sales staff, and to real estate sales agents who are involved in selling new homes. Also. new home buyers will be able to take the course to raise their awareness of the home buying process. The CD ROM will be searchable and would serve as an ongoing reference. A student guide will also be produced to compliment the course. The work is planned for completion by Summer 2001.

CMHC Project Officer : *Darrel Smith*
Division : Research Division
AVAILABILITY : Publication is not available

CIDN : 2412 0200001
STATUS : New Project

** SEE ALSO: *Homeownership Education and Counselling*, p. 75

HOUSE CONSTRUCTION

ALTERNATIVE WALL SYSTEMS FOR LOW-RISE RESIDENTIAL CONSTRUCTION

The purpose of this study is to compare various alternative wall systems for low-rise housing in use today. These systems will include insulated concrete forms, straw bale, structural insulated panels, stack wall, concrete block, post and beam, log, earth construction, engineered wood, and light gauge steel. The results of this study will be beneficial to those in the industry to help them make better informed decisions on choices between alternative systems. This study will take an inventory of and investigate the differences, benefits and limitations of the various building systems which are currently in use as compared to the typical wood-frame, stick-built construction of low-rise housing. It will consider the advantages and/or disadvantages of the various systems. The study will examine a number of the factors to be considered by a builder or homeowner to help them understand the differences between the available system choices so they may evaluate and select systems appropriate to their clients, house designs, trade practices and skills, and regions. The study will include reviews by representatives from each of the wall system industries. The anticipated completion date is late 2001.

CMHC Project Officer : *Darrel Smith*
Division : Research Division
AVAILABILITY : Publication is not available

CIDN : 2119 0200
STATUS : Ongoing Project

CD-ROM VERSION OF THE CANADIAN WOOD-FRAME HOUSE CONSTRUCTION

The purpose of this project was to design and develop a CD-ROM version of CMHC's Canadian Wood-Frame House Construction (CWFHC) publication complete with a number of multimedia enhancements and other special features such as video clips, animations and 4D illustrations. The CD ROM includes a number of "calculators" to help the user determine the specified snow loads for specific locations across Canada, and to select proper beam and joist sizes and spacings. It also includes the Glossary of Housing Terms with links to and from the text and illustrations in the Canadian Wood-Frame House Construction, to serve as an illustrated glossary. Other features of this product are:

– It is a web-based interactive CD-ROM;
– A full-text search engine allows the user to search for any term;
– Planning ahead and checking back notes appear throughout the text with links to illustrations and video footage;
– It is based on the National Building Codes; and
– It contains 144 high quality illustrations that can be optimized for printing.

The CD-ROM system requirements are as follows:

For PC:

i486â , Pentiumâ
Microsoftâ Windowsâ 95/ Windows NT â 4.0
32 MB RAM
12 MB hard-disk space
Netscape 4x or Internet Explorer 4x
Adobe Acrobat Reader Version 4.0
Appleâ QuickTime 4.0
Microsoftâ Excel 97®

For Mac:

Macintosh PowerMac G3
Macintosh System OS 7.5
64 MB RAM
Netscape 4x or Internet Explorer 4x
Adobe Acrobat Reader Version 4.0
Appleâ QuickTime 4.0
Microsoftâ Excel 98

The CD ROM is now available separately or packaged with a hard copy of the CWFHC.

Order number for CD-ROM only: 62237;	Price: $64.95 + GST and handling charges
Order number for CD-ROM and Guide: 62234	Price: $84.95 + GST and handling charges

By purchasing the CD-ROM + Guide package:

You will save $5.00 off the price of purchasing them separately; and
Have the guide as a handy on-site référence

For clients who wish to demo the product, they may call to receive a copy of the Canadian Wood-Frame House Construction demo CD-ROM.

STATUS : Completed
AVAILABILITY : CMHC Information Products

COMPARING THE PERFORMANCE OF TWO-COAT VS THREE-COAT STUCCO

This project is being managed by CMHC's Prairie and Northwest Territories Business Service Centre in Calgary, in cooperation with the Alberta Housing Industry Technical Committee (AHITC). The research will use laboratory and field testing to compare the performance of two coat stucco commonly used in the Prairies and standard three coat stucco. If they perform similarly, building code changes may be recommended. The effects of stucco additives and mixtures will also be examined. Currently the contractor has completed the review of test procedures and is proceeding to the laboratory work. The field work that follows will involve testing samples of two-coat stucco removed from existing houses to verify their performance.

CMHC Project Officer : *Don Fugler, Colin Crumb* ***CIDN*** : 2399 0200
Division : Research Division ***STATUS*** : New Project
AVAILABILITY : Publication is not available

CONTRACTOR TRAINING COURSE ON THE CONSTRUCTION AND RESTORATION OF DURABLE BUILDING ENVELOPES FOR RESIDENTIAL WOOD-FRAME BUILDINGS LOCATED IN THE LOWER MAINLAND OF BC AND VANCOUVER ISLAND

This is a partnership project between the Canadian Home Builder's Association of British Columbia (CHBA/BC), the Homeowner Protection Office (HPO) of B.C. and CMHC. The purpose of the project is to develop a course curriculum and course training materials to train general contractors and subtrades in building construction practices that would enable them to construct highly durable building envelopes for new residential wood-frame buildings located in the lower mainland of British Columbia and Vancouver Island and to restore and upgrade the envelopes of existing buildings. The end product will be a Trainer's Manual complete with all the necessary training aids, and a Participant's Manual. The course will be tailored to meet the needs of the residential construction industry and would use a full range of teaching methods to ensure that all participants absorb the information provided. The course development is expected to be completed by Summer 2001. CHBA-BC is in the process of finding industry partners to help fund the pilot of the course. The pilot will consist of three seminars over a six month period with up to 25 participants per seminar. CHBA-BC will be granted the exclusive right to deliver this course in the province of BC for a two year period.

CMHC Project Officer : *Darrel Smith, Mark Salerno* ***CIDN*** : 2287 0200002
Division : Research Division ***STATUS*** : Ongoing Project
AVAILABILITY : Publication is not available

FEASIBILITY STUDY ON THE DEVELOPMENT OF A COMMISSIONING GUIDE FOR NEW HOUSES

The purpose of this project is to confirm the importance and determine the feasibility of developing a commissioning guide for builders and buyers of new houses. Commissioning of a new home could help confirm for the owner that all of the components and systems have been installed to operate as designed and intended. If developing such a guide is possible and desirable, the study would indicate necessary content, and identify possible options for its production. One option is that the guide become a part of CMHC's Home Owners Manual. The first draft of the feasibility study has been submitted for review and the final draft is anticipated to be completed later this Summer. Further action by CMHC will depend on the findings of the research.

CMHC Project Officer : *Darrel Smith* ***CIDN*** : 2360 0200001
Division : Research Division ***STATUS*** : Ongoing Project
AVAILABILITY : Publication is not available

FEASIBILITY STUDY ON THE DEVELOPMENT OF A GUIDE FOR ENGINEERED WOOD I-JOIST FLOOR SYSTEMS

The purpose of this project is to confirm the need for and determine the feasibility of producing a generic guide for builders on the selection and proper installation of engineered wood I-joist floor systems. As a prerequisite to possibly developing a guide, the study will identify information required and available and effective ways that a guide could be produced. The first draft of the feasibility study has been submitted for review and the final draft is anticipated to be completed by Summer 2001. Should this study confirm the need, development of a generic guide could begin later in 2001.

CMHC Project Officer : *Darrel Smith*
Division : Research Division
AVAILABILITY : Publication is not available
CIDN : 2358 0200001
STATUS : Ongoing Project

RESEARCH ON SOLUTIONS TO PYRITE-RELATED BACKFILL EXPANSION PROBLEMS

This study will draw up an inventory of the problems associated with the reactions of the pyrite (iron sulphide) contained in the backfill stone used under slabs in residential properties. Two hundred houses inventoried in three Montréal South-Shore municipalities will be visited under the CTQ-M200 protocol developed as part of the work of the Quebec technical committee on pyrite-related problems. The results of the study will identify possible causes and potential affordable solutions. The objective is to provide the industry with a more global vision of this new situation.

CMHC Project Officer : *Jacqueline Meunier-Bureau*
STATUS : Ongoing Project
Division : Research Division
AVAILABILITY : Publication is not available

HOUSE CONSTRUCTION INDUSTRY

TECHNOLOGY DISSEMINATION - A NEW APPROACH

Cost saving technologies are often slow to be adopted in Canadian house construction. This may partly be due in part to most contractors having limited abilities to undertake research and evaluation, and develop the competency to use such advances. The goal of this External Research Program work is to devise an information dissemination technique which focuses on the process of innovation introduction rather than the innovations themselves. It is felt that by "reasonably demonstrating" the value of various innovations to subcontractors, there will subsequently be a "natural" spread to other projects as the subcontractors utilize their newly acquired cost-effective techniques to gain a competitive advantage. This project report will be of interest to researchers, builders and developers who wish to integrate new and improved building process onto the mainstream of the construction industry. A project report should be available by summer 2001.

CMHC Project Officer : *Thomas Green*
Division : External Research Program
AVAILABILITY : Publication is not available
CIDN : 2144 0200016
STATUS : Ongoing Project

HOUSING

IDENTIFICATION OF GAPS IN DISASTER INFORMATION RELATED TO HOUSING

This short survey project will assemble and review existing housing information related to 'disasters' to assess if and where additional research may be required. The review will concentrate on housing and housing issues, and will be restricted to either Canadian sources or other sources in areas of similar climate or construction techniques. The contractor or an outside reviewer will assess the suitability of the information for the intended audience.

CMHC Project Officer : *Don Fugler*
Division : Research Division
AVAILABILITY : Publication is not available

CIDN : 2417 0200002
STATUS : New Project

HOUSING DESIGN

MONTRÉAL: A GREAT TRADITION OF MEDIUM-DENSITY HOUSING

This project aims to highlight the adaptation processes of housing and building types throughout the various phases of the evolution of "plex" formulas (duplex, triplex, fourplex, fiveplex ...) in Montreal over four construction cycles between 1866 and 1935.

CMHC Project Officer : *Mark Holzman*
Division : External Research Program
Research Division
Grant Recipient : David B. Hanna, Université du Québec à Montréal
P.O. Box 8888, Station CV
Montréal, Quebec H3C 3P6
AVAILABILITY : Publication is not available

CIDN : 1455 0200001
STATUS : Ongoing Project

INDOOR ENVIRONMENT

DEVELOPMENT OF A PROCEDURE FOR ESTIMATING AIR CHANGE RATES USING A SPECIFIC ODOUR AS A TRACER GAS

When householders complain about poor indoor air quality or high energy costs, the rate of outdoor air infiltration is critical in analyzing their problem. If the rate is very high, this could lead to high heating costs. If the rate is low, poor air quality may result and adding a ventilation system would be useful. However, there is no simple quantitative way for residents to estimate ventilation rates in their own house. This research project aimed at developing a procedure for estimating of air change rates, using a specific odour as a tracer gas. The research has not been particularly successful. The contractor selected a convenient and available odour source, wooden matches, but their usage as a whole house test procedure turned out to be impractical. They may be more suitable for room air change testing. Further testing is required (but not planned) in order to evaluate the use of odours to determine air change rates in small spaces.

CMHC Project Officer : *Don Fugler*
Division : Research Division
AVAILABILITY : Publication is not available

CIDN : 2396 0200002
STATUS : New Project

DEVELOPMENT OF A TEACHING MODULE ON INDOOR AIR QUALITY FOR PHYSICIANS

The Ontario College of Family Physicians, in collaboration with and funding from CMHC, is developing a teaching module on Indoor Air Quality which will form part of the curriculum in Environmental Health in Family Medicine. A module has been tested at a peer workshop for family physicians. The participants of this workshop will be delivering the module as pilots in their respective communities. Plans are underway to present the module at the teaching universities in Ontario. Distribution of the module in other provinces will also be explored. This project is an attempt to transfer housing information to consumers through health professionals. Physicians are in a unique position and authority and are the most suitable for communicating housing information and the health impacts of good indoor air quality.

CMHC Project Officer : *Virginia Salares*
Division : Research Division
AVAILABILITY : Publication is not available

CIDN : 2128 0200001
STATUS : Ongoing Project

HEALTHY INDOOR ENVIRONMENTS PHASE 2: CONSULTATION PROCESS

This is the second phase of the project "Towards the Use of Voluntary Initiatives for Achieving Healthy Indoor Environments in Canada" which was a 1998-99 partnership project led by Pollution Probe Foundation in which CMHC participated. Recommendations from the initial report include the development of a comprehensive multi-stakeholder strategy to address the Canadian indoor environment issue. This Phase 2 work, led by Pollution Probe in partnership with a number of government and industry stakeholders, involved the hosting of three regional consultations (Toronto, November 2000; Halifax, January 2001; and Vancouver, March 2001) and a web based database discussion forum. The objective of phase 2 is to develop a vision of what is possible in the field of healthy indoor environments, a strategy to achieve it, and multi-stakeholder commitment to realise that strategy. A final report for Phase 2 work is expected by spring 2001.

CMHC Project Officer : *Thomas Green*
Division : Research Division
AVAILABILITY : Publication is not available

CIDN : 2383 0200001
STATUS : Ongoing Project

INDOOR AIR POLLUTION FROM ATTACHED GARAGES

CMHC is contributing to a Health Canada/Environment Canada project investigating the infiltration of garage-based pollutants into houses. Twenty-five Ottawa houses have been tested to determine the leakage area between the house and the attached garage. Pressure differentials were recorded and pressure testing was repeated during the winter months. Further field testing took place in the winter of 1998/99, including modeling of the IAQ implications and monitoring of pollutant entry when the garage is occupied by a "calibrated" car. Modeling has given different results, and there is additional work to model the results a second time. Reports on various aspects of the project are being prepared by the agencies involved. CMHC will release a Research Highlight on the airtightness testing aspect of the project in summer 2001.

CMHC Project Officer : *Don Fugler*
Division : Research Division
AVAILABILITY : Publication is not available

CIDN : 1910 0200002
STATUS : Ongoing Project

INDOOR AIR QUALITY INVESTIGATION TRAINING

CMHC's Residential Indoor Air Quality IAQ) Investigator Training exists to train qualified individuals to investigate homes for indoor air problems. Individuals who complete the training acquire the skills to inspect homes for IAQ problems and to provide informed advice to homeowners on how to correct these problems. As a private business, they offer their professional services to the public for a fee. Individuals interested in the program can contact the training coordinator (e-mail: joolsdev@mv.igs.net, telephone 613 756-0714) for admission requirements and application forms. Two dozen individuals have received their completion diploma and fifty are in the field training phase. For referral purposes, a list of diploma graduates is available from CMHC offices.

CMHC Project Officer : *Virginia Salares*
Division : Research Division
AVAILABILITY : Publication is not available

CIDN : 1623 0300017
STATUS : Ongoing Project

PRINCE EDWARD ISLAND BIRTH COHORT STUDY OF MOLD IN HOMES

This joint study between CMHC, Carleton University, Health Canada and others is examining a large sample of homes in Prince Edward Island to determine the biological exposure, house performance parameters and energy use characteristics of a statistically-representative set of houses occupied by newborn babies. Part of the study will follow the health of these babies to determine the degree to which damp and moldy houses result in increased infant health problems. A total of 233 houses have been tested at the end of the fourth year of the project. An additional 60 houses are to be tested during 2001. Due to the long term nature of this research, research reports have not as yet been issued.

CMHC Project Officer : *Ken Ruest*
Division : Research Division
AVAILABILITY : Publication is not available

CIDN : 1618 0300001- 2
STATUS : Ongoing Project

RENOVATING THE HOME FOR ASTHMA: AN INTERVENTION STUDY

The purpose of this project is to study the relationship between air quality in housing and respiratory health in renovated housing. Health Canada, Carleton University and Natural Resources Canada are partners and will be represented in the project advisory committee. Funding is from CMHC, with contribution from the Program for Energy Research and Development (PERD). The methodology is similar to that of a completed pilot project which studied the effect of renovating the homes for indoor air quality on the asthmatic condition of the occupants. This project will look at 20 case studies of moldy houses selected from different parts of the country and renovated by their owners. Remediation of the houses will incorporate measures to improve their energy efficiency. The output will be a research report that will be of interest to builders and renovators, the general public, the asthmatic population, researchers and physicians. The study should be complete by late 2002.

CMHC Project Officer : *Virginia Salares*
Division : Research Division
AVAILABILITY : Publication is not available

CIDN : 2157 0200001
STATUS : Ongoing Project

RESEARCH CHAIR IN HEALTH AND INDOOR AIR QUALITY - CARLETON UNIVERSITY

CMHC is participating in an Industrial Research Chair in Health and Indoor Air Quality at Carleton University. The principal funding for this Chair is being provided by Paracel Laboratories, Morrison Hershfield Ltd., Health Canada, Kingston General Hospital, Carleton University and CMHC. The Chair, in collaboration with its partners, will develop more rapid and cost effective methods for measuring the types and amount of mold in buildings and exposures of the occupants, construct a database of cultures of molds found in moisture troubled buildings, prepare purified extracts of the molds for allergy diagnostic tests and undertake studies of the effects of these molds on lung cells. The output from this Chair would have far-reaching benefits for the general population in the clinical diagnosis of mold allergy and the mitigation of mold contaminated buildings. A five year research program of the Chair is currently being planned.

CMHC Project Officer : *Virginia Salares*
Division : Research Division
AVAILABILITY : Publication is not available

CIDN : 2269 0600
STATUS : Ongoing Project

STUDY OF DISPLACEMENT VENTILATION SYSTEMS FOR RESIDENTIAL HOUSES WITH RADIANT FLOOR HEATING SYSTEMS

It is estimated that about 1% of Canadians are environmentally hypersensitive. These people suffer partial to total debilitation. Some of them require a home environment that is as free as possible from air-borne contaminants. Designing and constructing such houses are hampered by the lack of practical guidelines both for selecting suitable building materials and furnishings, and for designing and installing effective ventilation systems. The Canada Mortgage and Housing Corporation has recently designed and constructed a prototype house for environmentally hypersensitive individuals. It includes a range of features to help to achieve an acceptable indoor environment for these people at a minimal cost. These features include the use of commercially available low emission building materials and easily cleanable interior finishing, and a specially designed displacement ventilation system.

A joint project was established between the Canada Mortgage and Housing Corporation and the Institute for Research in Construction to assess the performance of the displacement ventilation system installed in this prototype house. This report presents the results of this evaluation.

The results will help to develop guidelines for designing and constructing suitable and affordable housing for environmentally hypersensitive individuals. Some of the measures used in this prototype house may also be adopted in new and existing houses to improve indoor air quality.

Prepared by J.S. Zhang, R.J. Magee and C.Y. Shaw of the National Research Council of Canada. Ottawa: Canada Mortgage and Housing Corporation, 2001. 26 pages

STATUS : New Completed Report
AVAILABILITY : Canadian Housing Information Centre

** SEE ALSO: *Cost Effective Indoor Air Quality and Energy Efficiency Recommendations for First Nations Housing*, p. 15

FEASIBILITY OF UTILIZING A PORTABLE HOUSING PLANT FOR SINGLE FAMILY DETACHED CONSTRUCTION

This project would study the economic feasibility of using an automated, highly mobile plant to produce houses that are from 90-95% complete when they leave the plant. The plant would be erected in the subdivision where the houses are to be built, and once the construction program is complete, the plant would be dismantled and shipped to the next locale.

CMHC Project Officer : *Chris Ives*
Division : External Research Program
AVAILABILITY : Publication is not available

CIDN : 2305 0200004
STATUS : Planned

LAND USE ISSUES IMPEDING THE PROVISION OF AFFORDABLE HOUSING WITH MOBILE HOMES

The study will summarize the manufactured (mobile) home legislative environment across the U.S. and Canada, identify legislative and land use impediments blocking improved market share on the part of the Canadian industry, analyze the relevance of the pro-active U.S legislative environment as a paradigm for Canadian legislative reform and develop suggestions for manufactured home land use and legislative development in Canada.

CMHC Project Officer : *Doug Pollard*
Division : Research Division
AVAILABILITY : Publication is not available

CIDN : 2154 0200001
STATUS : Ongoing Project

MANUFACTURED HOUSING CONSULTANTS' TRAINING PROGRAM - PHASE II

This is a partnership project between the Canadian Manufactured Housing Institute (CMHI), the Provincial Manufactured Housing Associations of B.C., Alberta and Saskatchewan, Ontario and Atlantic Canada, and CMHC. The purpose of this project is to build on and improve the two day Manufactured Housing Consultants' Training Program and to ready it for ongoing delivery at the provincial level. The participant's manual and the trainer's material will be revised to incorporate improvements resulting from the pilot program, and new additional material will be developed such as: section for modular retailers, participants workbook, and marketing and promotional materials. These changes are necessary to ensure a high level of quality, effectiveness and consistency of the course delivery by the various provincial industry associations. This work is anticipated to be completed by Spring of 2001. Once this work is completed, the program will be delivered through a partnership arrangement with provincial associations/organizations and it will be open to all representatives of the manufactured housing industry in Canada.

CMHC Project Officer : *Darrel Smith*
Division : Research Division
AVAILABILITY : Publication is not available

CIDN : 2196 0200001
STATUS : Ongoing Project

MANUFACTURED HOUSING

MANUFACTURED HOUSING: UPDATING AND REWRITING LOCAL REGULATIONS: REGIONAL DISTRICT OF NORTH OKANAGAN = L'HABITATION USINÉE : MISE À JOUR ET RÉÉCRITURE DES RÈGLEMENTS LOCAUX : DISTRICT RÉGIONAL DE NORTH OKANAGAN

The purpose of this project, sponsored by B.C.'s Regional District of North Okanagan (RDNO), was to end discrimination against manufactured housing and encourage its parity with site-built homes. In the RDNO, officials recognized the need for more affordable housing within the jurisdiction and wanted to promote and encourage alternative housing forms. They realized their out of date regulations governing manufactured housing were part of the problem. This project examined the regulatory environment for manufactured housing in the Regional District of North Okanagan, in south central British Columbia. As a result, the RDNO and one of its incorporated townships adopted regulations making it easier for this type of housing to flourish. It proposed solutions, that if adopted Canada-wide would put manufactured housing on an equal regulatory footing with sit-built homes. The adopted RDNO Manufactured Home Community Bylaw is included as an appendix in this ACT case study.

Case study written by: Word-Works Communications Services. Prepared for: Federation of Canadian Municipalities; Canadian Home Builders' Association; Canadian Housing and Renewal Association; Canada Mortgage and Housing Corporation. Ottawa: FCM; CHBA; CHRA; CMHC, 2000. (Affordability and Choice Today (A.C.T.) Regulatory Reform Project; ACT Case Study)

Order Number: 61425

STATUS : New Completed Report
AVAILABILITY : CMHC Information Products

MOISTURE AND MOLD

GUIDELINES FOR MOISTURE MANAGEMENT IN EXTERIOR WALL SYSTEMS

CMHC is providing financial and technical support to NRC/IRC to develop guidelines for moisture management strategies for exterior wall systems. The guidelines will address user requirements for long-term performance and durability of wall systems for the wide range of climate zones across North America.

CMHC Project Officer : *Silvio Plescia*
CIDN : 2199 0200001
Division : Research Division
STATUS : Ongoing Project
AVAILABILITY : Publication is not available

GUIDELINES FOR THE MEASUREMENT OF MOISTURE CONTENT IN FRAMED LUMBER

The objective of this project is to develop a guideline or protocol for the proper use of moisture measurement tools in measuring the moisture content of a specific point in a framed lumber assembly. The document will outline a process of how to take moisture readings, where to take moisture readings and how the moisture readings are corrected for temperature and wood species. In addition, the document will provide a general discussion about assessing the overall moisture content of the wood framed assembly.

CMHC Project Officer : *Silvio Plescia*
CIDN : 2398 0200001
Division : Research Division
STATUS : New Project
AVAILABILITY : Publication is not available

IMPROVEMENTS TO THE MOISTURE PERFORMANCE OF PRESERVED WOOD FOUNDATIONS

Work by Forintek, the wood industry research agency, has established that the bottom plate of preserved wood foundation walls is very often over 20% moisture content. The wood preservatives generally prevent this relatively high moisture content from causing any degradation in structural strength. However, it is possible that the wet plate will transfer moisture to the insulated cavity above. This may lead to the development of mold in the wall cavity. The objective of this research project is to retrofit a mold troubled Ottawa area preserved wood foundation to validate a practice for reducing a high moisture level and mold within the PWF cavity. The demonstration house has been modified by using fans to ventilate the lower part of the wall cavities. Monitoring of wood moisture levels will continue through 2001.

CMHC Project Officer : *Don Fugler*
Division : Research Division
AVAILABILITY : Publication is not available

CIDN : 2419 0200
STATUS : New Project

MOLD CLEANUP PROCEDURES: CONTRACTORS' GUIDE

A draft document for professionals on Mold Cleanup Procedures is under development by CMHC. The focus of the document is on information required by contractors involved in renovation and clean-up of mold contaminated houses. As a result of rapidly evolving knowledge in this field, the current draft of the document and its mold cleanup procedures are now being revised to incorporate more current and substantive information from authoritative sources. This document will address mold cleanup in general and will include information on the precautionary measures required to protect workers and occupants, and present best practices for mold remediation. A significant change in approach since preparation of the original draft is the expert consensus that mold remediation should be approached from the perspective of the size of visible mold area rather than the type or toxicity of the molds present.

CMHC Project Officer : *Ken Ruest*
Division : Research Division
AVAILABILITY : Publication is not available

CIDN : 2380 0200
STATUS : Ongoing Project

MOLD IN HOUSING: AN INFORMATION KIT FOR FIRST NATIONS COMMUNITIES

The information in this kit will assist First Nations communities to recognize when there is a mold problem and to take the necessary steps to deal with the problem. This kit is intended for:

- technical service providers (inspectors) ;
- First Nations housing departments -- housing coordinators and maintenance staff;
- bands -- band managers, housing providers;
- health providers -- community health nurses/representatives and environmental health officers;
- occupants; and
- trades -- builders, contractors and renovators.

Mold is a widespread and common problem in houses anywhere, both in and outside First Nations communities. It can be a minor nuisance or it can have major effects on the occupants.

Mold in houses does not happen overnight. The solutions are also not immediate. A strategy needs to be adopted that includes responding to existing situations, preventing future problems and planning new construction. The responsibilities of the key players and their training needs are identified in this kit.

MOISTURE AND MOLD

The first part of this kit (chapters 1 to 5) is basic information. It is written for occupants. The second part (chapters 6 and 7) clarifies the responsibilities of the key players and identifies the training they need. The third part (chapters 8 to 17) deals with specialized topics and is directed to housing providers.

Ottawa: A joint publication of Canada Mortgage and Housing Corporation, Health Canada, and Indian and Northern Affairs Canada, Assembly of First Nations Housing Secretariat, 2001. 91 pages

Note: Publié aussi en français sous le titre : La moisissure dans les logements : Trousse d'information pour les collectivités des Premières nations

STATUS : New Completed Report

AVAILABILITY : Canadian Housing Information Centre

** SEE ALSO: *BC Moisture Problems*, p. 31

NORTHERN HOUSING

COMPARISON OF NORTHERN HOUSING COSTS

This project will outline all components associated with the production of a Northern home - from soft to hard, at both the house level and community level to determine which elements, in which locations are inordinately skewing costs. Use of direct data from Northern communities will verify these costs. Index communities will allow for comparison of costs between Northern communities, and between the North and South. The operationalized database will permit future tracking and analysis such as life cycle performance costs; where use of local labour, indigenous materials and value-added processing of raw, local materials can be developed or expanded to reduce housing costs; and where capacity building may be of benefit. The database will be available in Summer of 2001.

CMHC Project Officer : *Aleta Fowler*

Division : Research Division

AVAILABILITY : Publication is not available

CIDN : 2370 0200

STATUS : Ongoing Project

INNOVATIVE FOUNDATIONS, HEATING & VENTILATION

This R&D&C (research, development, commercialization) project and first stage monitoring is complete. CMHC, Yukon Housing Corporation (YHC) and Yukon Energy partnered in building two research/demonstration houses in Dawson City, Yukon. This work is a continuation of previous successes in R&D&C of the space frame foundation technology now being exported to Alaska. The thrust of the current foundation work is to reduce cost, develop a technology that can be locally manufactured and reduce the height of the crawl space.

A torque tube HSS steel section is under one house. The other house will be an extension of the sheet metal reinforced plywood monocoque technology resting on three bearing points. Lots of ground movement has been reported so the test site is proving to be a good demonstration. After a review of northern and remote technology, the heating and ventilation systems incorporate and optimize energy efficiency, minimal equipment and sustainable ventilation operation. Construction is complete and the houses are occupied. Commissioning of the project was a large task and the systems appear to be running efficiently at about half the energy consumption of a typical northern house. The mechanical technology was used on another YHC project at substantial capital savings and with some modifications appears to be the technology of choice. Work is underway to develop a more cost effective and simple foundation system.

STATUS : Completed

AVAILABILITY : Publication is not yet available

NORTH WEB-SITE

The purpose of this partnership project was to design, establish and maintain a dedicated NoRTH Web-Site for a two year period. The project partners are CMHC, Alaska Housing and Finance Corporation, NWT Housing Corporation, University of Alaska (Fairbanks), and Yukon College. The web-site includes relevant technical information such as factsheets of research reports and the Frostline newsletter. It also includes discussion groups to provide a means of ongoing and current communication. The web-site has links to other relevant web-sites and can be visited at www.NoRTH-RTHN.org. A current site renovation by NWT Housing Corporation will enable it to become self-supporting. This project will retain a person to post the backlog of articles, to recruit new material needed by Northern audiences, implement the planned next steps such as negotiating links to critical sites, creating a chat room format, etc.

CMHC Project Officer : *Aleta Fowler*
Division : Research Division
AVAILABILITY : No report will be published
CIDN : 2369 0200
STATUS : Ongoing Project

NORTHERN HEALTHY HOUSE DEMONSTRATION

The North has proven itself receptive to Healthy House components as demonstrated by the success of the adoption of microsystems in numerous communities. The North is at a critical juncture with de-evolution of housing responsibility to the community level. Many communities are debating primary housing and infrastructure issues. This project identifies all Healthy House components, with each of their options, to allow communities to make choices based upon their specific circumstances. This feasibility report will be available in the Summer of 2001, and will be followed by a Demonstration Project to begin in 2001.

CMHC Project Officer : *Aleta Fowler*
Division : Research Division
AVAILABILITY : Publication is not available
CIDN : 2471 0200
STATUS : Ongoing Project

RESIDENTIAL FOUNDATION SYSTEMS FOR PERMAFROST REGIONS

Permafrost underlies all of the Yukon, Northwest and Nunavut Territories and much of the northern portions of the provinces, especially Manitoba and Quebec. Frozen ground conditions can have significant adverse effects on structures in the north. The effects of settlement and frost heaving commonly result in the premature deterioration of residential structures. Problems related to foundation design and construction can be reduced to a minimum if care is taken in the selection of suitable sites and appropriate foundation systems.

This project is a study on foundation systems for use in Northern permafrost and intermittent permafrost areas. The study assembled, documented and analyzed all data possible from literature searches and from the field on all known foundation systems used in the north. The final report includes a decision making tree to enable communities, homeowners, builders and renovators to make informed and appropriate choices in foundation systems.

Prepared by AGRA Earth & Environmental Limited. CMHC Project Officer: Aleta Fowler. Ottawa: Canada Mortgage and Housing Corporation, 2000.

STATUS : New Completed Report
AVAILABILITY : Canadian Housing Information Centre

NORTHERN HOUSING

USE OF COMPRESSED-AIR-FOAM TECHNOLOGY FOR FIRE PROTECTION OF HOUSING IN THE NORTH

The high cost of Northern housing, and housing insurance, may justify the installation of fixed automatic fire suppression systems. Conventional sprinkler systems require more water than is presently available in buildings and would entail substantial re-design. Further, although sprinkler systems may allow some occupants of the building time to exit, and may allow time for fire fighters and equipment to arrive, water damage in suppressing the fire usually damages the building beyond reasonable repair. The National Research Council of Canada (NRC) has developed a compressed-air-foam (CAF) system which uses 10% of the water required by conventional sprinkler systems. Further, it is designed to extinguish, not just contain or suppress, fires. This study is a partnership project headed by the Fire Marshal of the Northwest Territories. Partners include the GNWT Public Works and Government Services, Justice, Health, Municipal and Community Affairs, Corrections Canada, NWT Housing Corporation and others. It will look at the preliminary feasibility of the design of a self-contained CAF system for a building (optimal CAF piping and discharge), assessment of the water requirements for the CAF system, and the development of appropriate CAF nozzles.

CMHC Project Officer : *Aleta Fowler*
Division : Research Division
AVAILABILITY : Publication is not available

CIDN : 2311 0200002
STATUS : New Project

** SEE ALSO: *Alternative Home Energy Sources for the North*, p. 23
Northern Heating and Ventilation Systems, p. 29

PROPERTY MANAGEMENT

CONTRACT MANAGEMENT COURSE FOR RESIDENTIAL PROPERTY MANAGERS AND BUILDING OWNERS

This project will develop course content to provide an introduction to construction/contract management processes for residential property managers, building owners and anyone involved in the administration of multi-unit residential buildings. The course material will be as applicable to the management of major service contracts as it is to major construction works including repair, replacement and/or rehabilitation projects. Topics covered in this course include the different types of construction or service contracts, a discussion of the construction process, administering the tendering process, evaluating the tendered bids, contractor /consultant selection, bonding and insurance requirements, the building owners responsibilities and those of the contractor/consultant. This project should be completed by late in 2001.

CMHC Project Officer : *Silvio Plescia*
Division : Research Division
AVAILABILITY : Publication is not available

CIDN : 2294 0200
STATUS : Planned

TECHNICAL AUDIT COURSE FOR PROPERTY MANAGERS

This project aims to develop a course for property managers on the technical audit of high-rise residential buildings. Using a building as a system approach, this course will provide property managers and building owners with a perspective of the interaction of all building systems and components. Such training is not available to residential property managers in Canada. Technical audits, an organized review of building systems, are an effective way to assess the condition of a building, to understand how the building is performing and to provide a sound basis for making maintenance, repair and upgrade decisions. The course provides the property manager with insights into the technical audit process and highlights the requirements for undertaking technical audits of residential buildings including the scope of the work, the consultant qualifications. The course also introduces the fundamental principles of building science to encourage holistic solutions to building problems.

CMHC Project Officer : *Silvio Plescia*
Division : Research Division
AVAILABILITY : Publication is not available

CIDN : 2297 0200
STATUS : New Project

REGULATORY REFORM

AUSTRALIAN BUILDING REGULATION AND LIABILITY REFORMS: AN UPDATE

This report builds on, and complements, the 1999 report "Australian Building Regulation and Liability Reforms". It examines the experience of home builders with the new building regulatory system, reviews the regulatory regime being established in the state of Tasmania, and assesses how the information gathered might affect the adoption of similar reforms in Canada.

Prepared by Greg Lampert. Prepared for Canadian Home Builders' Association and Canada Mortgage and Housing Corporation. Ottawa: CMHC, 2000. (Healthy Housing and Communities Series) 53 pages

Order number: 62158

NOTE : Aussi disponible en français sous le titre : Réformes de la réglementation australienne de la construction et des dispositions en matière de responsabilité: Le Point

STATUS : New Completed Report
AVAILABILITY : CMHC Information Products

** SEE ALSO: p. 94-99

RENOVATION AND INSPECTION

CANADIAN HOME INSPECTORS AND BUILDING OFFICIALS - STEERING COMMITTEE FOR NATIONAL OCCUPATIONAL STANDARDS

The purpose of the first phase of this multiphase project is to develop national occupational standards for the private home inspection and municipal building code inspection sectors. The project was supported by the industry sectors, Human Resources Development Canada and CMHC. A committee consisting of seven members from each of the two sectors plus an independent chair was formed and operated under the name of Canadian Home Inspectors and Building Officials - Steering Committee for National Occupational Standards. There were a total of three focus group workshops consisting of industry members from across the country to develop the draft standards. The standards were later sent out to industry stakeholders, and posted on industry web sites for validation by the membership at large. Two separate national occupational standards were approved, one for each of the sectors as well as a third document which combines the core competencies common to the two sectors. The final documents are being translated and are anticipated to be completed for distribution in late Spring 2001.

The Canadian Home Inspectors and Building Code Officials are now preparing for the next phase which is to use the occupational standards and complete the remaining steps of the project, such as curriculum development, validation of training material and training facilities, development of exam, development of standards of performance, criteria for certification of inspectors, criteria for accreditation agencies, code of ethics, etc. CMHC continues to support this industry initiative.

CMHC Project Officer : *Darrel Smith*	***CIDN*** : 1962 0200002
Division : Research Division	***STATUS*** : Ongoing Project
AVAILABILITY : Publication is not available	

FEASIBILITY STUDY FOR A HERITAGE RENOVATION ASSISTANCE SERVICE, LAC-SAINT-JEAN HISTORICAL SOCIETY, ALMA, QUEBEC = ÉTUDE DE FAISABILITÉ SUR UN SERVICE D'AIDE À LA RÉNOVATION PATRIMONIALE, SOCIÉTÉ D'HISTOIRE DU LAC-SAINT-JEAN, ALMA (QUÉBEC)

This case study documents the work of the Lac-Saint-Jean Historical Society which received an A.C.T. grant to study the feasibility of establishing a "Heritage Renovation Assistance Service". This Service is targeted at those involved in the renovation process and provides both do-it-yourself and professional home renovators with a comprehensive and easy-to-understand source of information on acceptable renovation techniques and materials. The case study report describes the project's aims and results, and the community and key players involved. The benefits resulting from the Service are described as well as how this type of service would be useful to renovators in other municipalities.

Case study written by: Julie Tasker-Brown. Prepared for: Federation of Canadian Municipalities; Canadian Home Builders' Association; Canadian Housing and Renewal Association; Canada Mortgage and Housing Corporation. Ottawa: FCM; CHBA; CHRA; CMHC, 1999. (Affordability and Choice Today (A.C.T.) Regulatory Reform Project; ACT Case Study) 38 pages

Order Number: 61994

STATUS : New Completed Report
AVAILABILITY : CMHC Information Products

FEASIBILITY STUDY ON USING THE PRIVATE HOME INSPECTION INDUSTRY TO COLLECT DATA ON THE PHYSICAL CONDITION OF CANADA'S EXISTING HOUSING STOCK

The purpose of this project was to conduct a feasibility study on the use of the private home inspection industry nationally as a vehicle for gathering data on housing characteristics and physical conditions. The study investigated the type of information desired by CMHC and the type of information currently being gathered by the inspection industry. The study considered the various reporting systems being used, the numbers and types of homes inspected annually, geographic coverage, reliability of the information, anticipated costs, confidentiality requirements, use limitations and potential contractual arrangements for obtaining this and other data for CMHC's purposes. The final report for this study is complete, however before considering the recommendations the study is to be amended to include an investigation of similar interests by other groups and departments, internal and external to CMHC and to consider the possibility of undertaking a coordinated data collection project. The second part of this project will occur in 2001 and is anticipated to be completed by the Fall.

CMHC Project Officer : *Darrel Smith*	***CIDN*** : 2286 0200
Division : Research Division	***STATUS*** : New Project
AVAILABILITY : Publication is not available	

GUIDE FOR THE HEALTHY RENOVATION OF A ONE STOREY HOUSE CIRCA 1960-1979

The objective of this project is to provide consumer information on typical approaches to the repair and renovation of bungalow-style houses built between 1960-1979. The advice considers occupant lifestyle and needs, structural and maintenance requirements, "Healthy Housing" improvements (including environmental and energy-efficiency), and the impact on home equity and resale value. The publication will include case studies of common renovations to this style of house. The guide will resemble the initial publication in this series which describes appropriate renovations to 1½ storey houses. The report is being prepared for publication.

CMHC Project Officer : *Don Fugler*
Division : Research Division
AVAILABILITY : Publication is not available
CIDN : 2202 0200001
STATUS : Ongoing Project

NATIONAL RENOVATORS' TRAINING PROGRAM - REVISION 2000

The purpose of this project is to revise and amend the course content and format of CMHC's National Renovators' Training Program. As discussed with the Canadian Renovators' Council, this work will implement the short-term and long-term improvement recommendations presented in the CMHC report Renovator Training in Canada: Current Situation and Future Strategies. One significant revision will allow for the course to be presented effectively in two phases, with five three hour modules in each phase. The revision is underway and should be completed by Summer of 2001.

CMHC Project Officer : *Darrel Smith*
Division : Research Division
AVAILABILITY : Publication is not available
CIDN : 2387 0200
STATUS : New Project

PRIORITIZED PRACTICAL APPROACHES FOR ESSENTIAL REMEDIATION, REPAIR AND MAINTENANCE PROJECTS

The purpose of this project was to identify and prioritize essential remediation work which must be completed before undertaking common renovation projects. Information has been produced in twelve independent fact sheets on how to identify the prioritized work, consequences of not doing the work, practical solutions, and benefits. This information will be useful to homeowners to help them prioritize essential repair work either in isolation or as part of a renovation project. The information can also be used by renovators as a tool to help convince homeowners of other essential repairs which needs to be corrected as part of a renovation project when applicable. These twelve "Before You Renovate" fact sheets include the following titles:

-- Assessing the Renovation Project. About Your House Series; CE 28a
-- Before You Start Renovating Your Basement - Structural Issues and Soil Conditions. About Your House Series; CE 28b
-- Before You Start Renovating Your Basement - Moisture Problems. About Your House Series; CE 28c
-- Before You Start Renovating Your Kitchen. About Your House Series; CE 28d
-- Before You Start Renovating Your Bathroom. About Your House Series; CE 28e
-- Before You Start Window and Door Renovations. About Your House Series; CE 28f
-- Before You Start Repairing or Replacing Roof Finishes. About Your House Series; CE 28g
-- Before You Start Repairing and Replacing Materials -- Exterior Walls. About Your House Series; CE 28h

RENOVATION AND INSPECTION

– Before You Start an Energy Efficient Retrofit – Mechanical Systems. About Your House Series; CE 28i
– Before You Start an Energy Efficient Retrofit – The Building Envelope. About Your House Series; CE 28j
– Before You Start Assessing the Comfort and Safety of Your Home's Mechanical Systems. About Y0our House Series; CE 28k
– Before You Start a New Addition. About Your House Series; CE 28L

Ottawa: Canada Mortgage and Housing Corporation, 2001.

STATUS : New Completed Report
AVAILABILITY : CMHC Information Products and available on the Internet at: http://www.cmhc-schl.gc.ca/en/burema/gesein/abhose/index.cfm

SUSTAINABLE DEVELOPMENT & HEALTHY HOUSING

ACTION PLAN FOR REDUCING GREENHOUSE GASES IN RURAL COMMUNITIES

By communicating the experience of Perth, Ontario, the purpose of this project is to prepare an integrated planning strategy that would provide guidance for rural municipalities across Canada facing the challenges of developing action plans for achieving Kyoto targets for reducing greenhouse gas (GHG) emissions. The objective is to provide an innovative, comprehensive planning approach for rural communities that integrates transportation planning, land use planning, new housing and retrofits, waste management, economic development and the regulatory environment.

CMHC Project Officer : *Susan Fisher*
Division : Research Division
AVAILABILITY : Publication is not available
CIDN : 2105 0200001
STATUS : Ongoing Project

CANADIAN HOMES AND CLIMATE CHANGE

The object of this research is to create a guide for consumers on Canadian homes and climate change. The guide, in the form of a questionnaire, will help consumers identify where they can make changes in their activities and households to minimize their greenhouse gas creation. CMHC will contribute the Guide as part of the broadly based, national social marketing initiative to reduce climate change. A draft questionnaire has been prepared and published in various publications. The questionnaire has been redrafted for easier use. This new form is being tested prior to publication.

CMHC Project Officer : *Don Fugler*
Division : Research Division
AVAILABILITY : Publication is not available
CIDN : 2120 0200001
STATUS : Ongoing Project

CONSTRUCTION RESOURCE MANAGEMENT COURSE - PHASE II

A private and public sector consortium was established to develop a methodology for assisting industry to better understand, control and reduce the levels of construction, renovation and demolition (CRD) waste. The partners included; Department of National Defense, Industry Canada, Canada Mortgage and Housing Corporation, Alberta Environmental Protection, NWT Department of Resources, and PCL Constructors Canada Inc. Phase I was the development of a CRD training course in hard copy. The course provides practical and comprehensive information on resource management issues in the Canadian CRD industry. It is intended for project managers which include, but are not limited to: engineers, architects and CRD contractors. Phase II consisted of the development of an Internet based CRD project management course that would: provide current resource management information and case-specific solutions; contribute to the development of standard managerial practice; promote widespread communication of the best resource recovery techniques, contribute to economic growth and job creation; promote long-term behavioural change; and help industry associations and government departments meet mandated environmental targets.

STATUS : Completed

AVAILABILITY : To obtain more information on the CRD Course please contact Vince Catalli at byDesign Consultants (613) 759-4605 or at www.bydesignconsultants.com .

DEVELOP A SET OF ENVIRONMENTALLY SUSTAINABLE SITE AND BUILDING DESIGN, CONSTRUCTION AND OPERATION GUIDELINES FOR SINGLE AND MULTI-FAMILY UNIT HOUSING, MOTELS AND HOTELS FOR THE TOWN OF BANFF

The purpose of this project is to develop a set of environmentally sustainable site and building design, construction and operation guidelines for single and multi-family unit housing, motels and hotels for the Town of Banff in a manner which could be used to inform the development of similar guidelines for other communities across Canada.

CMHC Project Officer : *Doug Pollard*
Division : Research Division
AVAILABILITY : Publication is not available

CIDN : 2309 0200001
STATUS : New Project

IMPLEMENTING SUSTAINABLE COMMUNITY DEVELOPMENT: CHARTING A FEDERAL ROLE FOR THE 21ST CENTURY

This research was undertaken to accelerate the implementation of sustainable communities in Canada and was designed to answer the following key questions:

- What are the essential features of sustainable community development?
- Why is sustainable community development so important to the future economic, social and environmental health and well being of Canadians?
- What is the current status of sustainable community development in the US, Europe, Australia, New Zealand and Canada, and more importantly, what are federal governments doing to support these innovative developments?
- What are the primary barriers to sustainable community development in Canada?
- What types of policy and program measures could the federal government implement in partnership with municipal governments and others to effectively stimulate the implementation of sustainable communities in Canada?

This report is written primarily for federal policy makers who are interested in promoting sustainable development and reducing greenhouse gases at the community level. However, it also provides resources for other practitioners - innovative developers, development consultants, planners and municipal, regional and provincial policy makers - who are also interested in implementing sustainable communities.

Information on "good practices", examples of the major features of sustainable communities and possible questions for assessing development proposals are provided. Five detailed case studies on successful and unsuccessful sustainable communities and included lessons learned with practical advice on marketing and financing are provided. Pictures and graphics illustrating the major features of sustainable communities are used throughout the report.

Prepared by P & A Peck & Associates. Written by Steven Peck, Ray Tomalty, Anna Hercz and Guy Dauncey. Prepared for Canada Mortgage and Housing Corporation and Natural Resources Canada. CMHC Project Officer: Doug Pollard. Ottawa: Canada Mortgage and Housing Corporation, 2000.

STATUS : Completed
AVAILABILITY : Canadian Housing Information Centre

LIVING BY WATER GUIDEBOOK

The objective of this project is to prepare, publish, market and distribute a guidebook for waterfront residents on reducing environmental impacts of housing on aquatic and shoreline habitat.

CMHC Project Officer : *Susan Fisher*
Division : Research Division
AVAILABILITY : Publication is not available
CIDN : 2040 0200001
STATUS : Ongoing Project

PRACTICES FOR SUSTAINABLE COMMUNITIES

"Practices for Sustainable Communities" presents:
-- A framework to identify and organize the practices --- the tools, strategies and activities -- that lead to greater sustainability; and
-- Examples of sustainable community development practices.

This book makes the idea of sustainable development a practical reality. It is a Canadian view of the challenges of sustainability, with made in Canada case studies and solutions.

Included with the publication is SCIP, the Sustainable Community Indicators Program, developed by CMHC and Environment Canada. SCIP helps communities measure their progress in building and living sustainably. Communities can create a locale vision of sustainability and measure and monitor their progress in making that vision a reality.

Ottawa: Canada Mortgage and Housing Corporation, 2000. 176 pages

Order number: 62160 **Price: $59.95 + GST and handling charges.

NOTE : Aussi disponible en français sous le titre : Pratiques pour des collectivités durables

STATUS : New Completed Report
AVAILABILITY : CMHC Information Products

RESIDENTIAL GREENWAYS IN TRANSITION: FOUR DECADES OF PRACTICE IN WATERLOO

This research examines the evolution and assesses the merits of residential greenways employed in the City of Waterloo over the past four decades.

CMHC Project Officer : *Susan Fisher*
Division : External Research Program
Grant Recipient : Larry Martin
AVAILABILITY : Publication is not available
CIDN : 2144 0200015
STATUS : Ongoing Project

SOIL AND FLORA RESTORATION AFTER GROUND DISTURBANCE

This research will examine local soils and indigenous plants in the North to arrive at a means for restoring healthy ground cover after disturbance (such as construction), at the least cost. In the North especially, ground cover loss exacerbates erosion of buildings, roadways and community infrastructure. Soil damage due to exposure leads to summer dust which deteriorates building exteriors and heating systems; impedes the operation of windows and doors; and affects the health of both the occupants and the community at large. Ground cover damage is also one of the leading factors for the break-down of permafrost. This study has the possibility for developing entrepreneurial opportunities and will be of interest to communities, health care providers, northern housing providers as well as to other northern countries. The final report will be available in 2002.

CMHC Project Officer : *Aleta Fowler*
Division : Research Division
AVAILABILITY : Publication is not available

CIDN : 2311 0200002
STATUS : Ongoing Project

** SEE ALSO: *Information Transfer of Healthy Housing Technology in the Aboriginal Context*, p. 15
Northern Healthy House Demonstration, p. 57

WATER CONSERVATION, REUSE & MANAGEMENT

CASE STUDIES OF WATER CONSERVATION INITIATIVES IN MULTIS

CMHC, in partnership with City of Toronto Better Buildings Partnership, will document case studies of water conservation retrofits for multi unit residential buildings. The building profile, water conservation measures, costs and resulting water and energy savings will be described. The studies will serve as examples to encourage water use efficiency in other building and will appear on CMHC's website.

CMHC Project Officer : *Cate Soroczan*
Division : Research Division
AVAILABILITY : Publication is not available

CIDN : 2239 0200
STATUS : Ongoing Project

DUAL FLUSH TOILET PILOT PROJECT

CMHC is working with a number of municipalities across the country to conduct a pilot program for dual flush toilet systems in a variety of buildings. This study will monitor water consumption and toilet performance as well as customer satisfaction with the dual flush system. Twelve agencies from eight provinces are participating in the project which will see toilets installed in single family homes, multi unit residential buildings, municipal and commercial buildings. These dual flush toilets will be compared to typical 13L and 20L toilets as well as Ultra Low Flow 6L toilets on a consumption and cost basis. Anticipated results of this work will be the increased awareness of dual flush systems across the country, and an improved ability to overcome regulatory, technical, and perceptual obstacles.

CMHC Project Officer : *Cate Soroczan*
Division : Research Division

CIDN : 2336 0200
STATUS : New Project

ECONOMIC FEASIBILITY STUDY OF WATER REUSE AND TREATMENT TECHNOLOGIES

The purpose of this project is to undertake and complete an economic feasibility study of water reuse and treatment technologies. The contractor will assess ten case studies of on-site water reuse applications. Final draft has been received and the case studies will be uploaded to the CMHC water website on a monthly basis. Further attention is being paid to the financial aspects of water reuse and full costing.

CMHC Project Officer : *Cate Soroczan*
Division : Research Division
AVAILABILITY : Publication is not available

CIDN : 2089 0200002
STATUS : Ongoing Project

IDENTIFY EXISTING AND EMERGING GREYWATER TREATMENT AND RE-USE TECHNOLOGIES AND TO EXPAND AND REVISE ITS TECHSPEX SOFTWARE TO INCLUDE GREYWATER OPTIONS

This project's objective was to undertake and complete a review of the emerging greywater treatment and re-use technologies and the expansion and review of the TechSpex software to include greywater options.

CMHC Project Officer : *Cate Soroczan*
Division : Research Division

CIDN : 1927 0200005
STATUS : Completed

MAXIMUM DAY WATERING DEMAND PHASE II - ASSESSMENT OF WATER CONSERVATION STRATEGIES

To determine the impact of the Household Guide to Water Efficiency on indoor and outdoor water consumption. Specifically it will seek to address the questions: Is the impact on consumer behaviour maintained in the long term, what effect does the Guide have on outdoor water use during the summer months, and what extra impact does a complementary social marketing campaign have on consumer behaviour. This work is part of the second phase of the Max Day project initiated in 2000, which saw a reduction in consumption rates based on conservation method used.

CMHC Project Officer : *Cate Soroczan*
Division : Research Division
AVAILABILITY : Publication is not available

CIDN : 2341 0200003
STATUS : New Project

ON-SITE WATER QUALITY MONITORING AND CONTROL SYSTEMS

The objective of this project is to identify, through consultation, the requirements and elements of a long-term monitoring and control system for on-site water reuse technologies which will meet health and environmental regulatory needs, etc.

CMHC Project Officer : *Cate Soroczan*
Division : Research Division
AVAILABILITY : Publication is not available

CIDN : 1936 0200001
STATUS : New Project

PERFORMANCE ASSESSMENT OF BOOSTER PUMP CONTROLS FOR WATER AND ENERGY CONSERVATION

This pilot study, in partnership with Metro Toronto, Minto, and CMHC will assess the performance of two different booster pump control systems in 6 mult-unit residential buildings. Booster pump performance shall be measured in terms of electrical energy and water savings. The study will assess the impact of booster pump savings on buildings retrofitted with water efficient fixtures to ensure that only the technology application is measured without the influence of other concurrent changes. By utilizing 6 buildings with different characteristics, (size, # units, occupancy type), the work will also attempt to define what type of building profile will most benefit from utilizing this control system. The draft final report has been received and its findings indicate that greatest impact is felt with respect to energy savings. Water savings are best achieved through a leak detection and appliance retrofit program.

CMHC Project Officer : *Cate Soroczan*
Division : Research Division
AVAILABILITY : Publication is not available

CIDN : 2267 0200001
STATUS : Ongoing Project

PERFORMANCE ASSESSMENT OF LOW FLOW TOILETS

This project's objective is to set up and conduct a monitoring program to verify the flush volumes of Ultra Low Flow (ULF) toilets installed in single-family homes as part of Durham's retrofit program. Initial results indicate that depending on the brand of toilet installed there is a mixed reaction to low flow technology.

CMHC Project Officer : *Cate Soroczan*
Division : Research Division
AVAILABILITY : Publication is not available

CIDN : 2416 0200001
STATUS : New Project

WATER QUALITY MONITORING OF THE TORONTO HEALTHY HOUSE

The purpose of this project is to undertake the collection of water samples along various points from the Toronto Healthy House Water Reuse System and have them analyzed for a number of water quality parameters. To date a consultant has been awarded the contract and monitoring is underway.

CMHC Project Officer : *Cate Soroczan*
Division : Research Division
AVAILABILITY : Publication is not available

CIDN : 2337 0200002
STATUS : New Project

SOCIO ECONOMIC RESEARCH

ALTERNATE ABORIGINAL TRAINING DELIVERY OPTIONS

Experience over the past several years has shown the need to explore alternate approaches to delivery of training to First Nations (FN) communities and other Aboriginal groups. It is proposed that a small study be launched to look at the feasibility of FN and other Aboriginal groups sharing training expertise and resources by a number of innovative techniques, to supplement the more conventional approach.

One possible model is having a FN community which has already received training or built up expertise on its own, provide a "trainer" to another community to demonstrate and teach the relevant members of the second community. A variation on this would be to have the second community send 1-2 of its members to "shadow" the expert for several days or more to fully learn how to implement a given approach, technology, etc.

The study would examine the various possibilities of training sharing, how logistics could work, what sort of recompense the trainer or "training community" should expect, etc. Such a study holds the promise of extending training delivery resources having effective "hands on" training and supporting capacity development.

CMHC Project Officer : *Marcelle Gareau*
Division : Research Division
AVAILABILITY : Publication is not available

CIDN : 01PL0-8426
STATUS : Planned

COMMUNICATIONS & INFORMATION TRANSFER STRATEGY FOR ABORIGINAL GROUPS

The goal of this project is to develop a communications and information transfer strategy that will help CMHC in its interactions with Aboriginal housing groups regarding capacity development, research and information transfer activities. To be effective, information has to reach the audience that matters and be in formats that have the maximum impact.

The study looks at the barriers to finding and using housing related information, what makes housing related information relevant, what are key influences, and how effective are the available communications vehicles and distribution channels, all in regard to Aboriginal audiences.

The project consists of: an assessment of existing communication strategies and marketing research in the area of housing information and training; personal or telephone interviews with senior officials of key national and provincial stakeholder groups; group discussions with a broad range of the key client groups as defined in target audiences; and development of alternative communications and information transfer strategies for CMHC and assessment of their relative costs.

The target audience for this project is made up of: key decision makers in housing operations and policies, provincial organizations chosen to give regional coverage, major national organizations, and regional CMHC program officers.

The geographic coverage is Canada wide. All types of Aboriginal community, on or off-reserve in rural, remote and urban communities are included.

CMHC Project Officer : *Philip Deacon*
Division : Research Division
AVAILABILITY : Publication is not available

CIDN : 2225 0200001
STATUS : Ongoing Project

ABORIGINAL HOUSING

EFFECTS OF URBAN ABORIGINAL RESIDENTIAL MOBILITY AND SERVICE PROVISION

This project will examine the effects of Aboriginal urban mobility upon service provision in areas such as housing, education, and health care in both the private and public sectors. The project is aimed at examining the effects of Aboriginal urban mobility upon the provisions of services to Aboriginal people in Winnipeg and Regina.

CMHC Project Officer : *Marcelle Gareau*
CIDN : 2436 0200
Division : Research Division
STATUS : New Project
AVAILABILITY : Publication is not available

FIRST NATIONS HOUSING PROPERTY MANAGEMENT TRAINING COURSES AND RESOURCES

This project's objective is to undertake and complete the identification and assessment of First Nations housing property management training courses and resources and provide recommendations for a comprehensive curriculum and innovative approaches to delivery in remote communities.

CMHC Project Officer : *Jim Rockwood (ABC)*
CIDN : 2374 1500001
Division : Assisted Housing Division
STATUS : Planned
AVAILABILITY : Publication is not available

PROPOSAL FOR RESEARCH AND CONSULTATION ON INUIT HOUSING

The objectives of this project are to to develop a more current understanding of housing problems and priorities in Inuit communities, investigate and identify "best practices", and develop a housing strategy which will include innovative new means of financing and alternative forms of housing, recognizing that there is no funding for new housing commitments off-reserve through CMHC.

STATUS : Completed Report
AVAILABILITY : Canadian Housing Information Centre

URBAN ABORIGINAL ACCESS TO HOUSING (AND HOMELESSNESS)

This research study will develop a survey instrument to measure the longitudinal profile of Aboriginal household mobility, access to housing and homelessness using a historical interview technique. Snapshot surveys tell us that Aboriginal households are significantly more mobile than non-Aboriginal. This hyper mobility includes not only movement between reserve or home community and urban areas, but also between urban areas and within urban areas. The hyper mobility may lead to frequent difficulties in accessing accommodation, especially when coupled with the low socio-economic status of many Aboriginal households and discriminatory practices of some landlords. Some literature suggest that this combination of circumstances could be a major factor leading to Aboriginal homelessness. About 45% of the Aboriginal population live in cities and this segment of the population is expected to grow by almost half by 2016, which will likely exacerbate the situation.

CMHC Project Officer : *Philip Deacon*
CIDN : 2160-020001
Division : Research Division
STATUS : Ongoing Project
AVAILABILITY : Publication is not available

** SEE ALSO: p. 15

HOUSING CANADA'S CHILDREN

This study looks at children and the families in which they are raised, in the context of their environments. It presents a number of facts about Canadian households with children that describe their make up, the types of housing in which they live and their tenure arrangements. It also draws attention to the probable links between housing environments and children's development outcomes.

Overall, the findings of this study suggest that most children in Canada are raised in good housing environments. Eighty-five per cent of households with children lived in dwellings that were affordable, were in good repair and had enough bedrooms for the number and mix of household members, or they could have afforded to rent dwellings meeting these standards. However, the other 15% of households with children were in core housing need and they experience problems of affordability, housing disrepair and/or over-crowding. Furthermore, lone-parent households, family households that rented their accommodation and households with children with disabilities or Aboriginal identity were particularly susceptible to living in core housing need.

In 1996, two-parent households spent on average 21% of their income on shelter costs. In contrast, lone-parent households spent 34% of their income for shelter, which is higher than the norm for affordability and fewer of them lived in single-family housing units than in 1976. Households that spend more than the norm for their shelter - in terms of dollar amounts and the proportion of their incomes - are left with less to spend on other areas including food, transportation, recreation, children's clothing, education and reading, and child care. These items in general support healthy child development.

The study also shows that housing disrepair and crowding bear a relationship to child development outcomes. The potential exists for detrimental long-term effects on children raised in crowded dwellings in disrepair. The findings suggest that these children are more at risk of poor health, asthma, poor school performance, aggressive behaviours and trouble with the law. For example, 89% of children in sufficient housing were in excellent health compared to only 72% of children in crowded housing in disrepair, an outcome that underlines the importance of good housing environments for healthy development.

Prepared by Canadian Council on Social Development. CMHC Project Officer: Fanis Grammenos. Ottawa: Canada Mortgage and Housing Corporation, 2000. (Distinct Housing Needs Series) 34 pages

Order number: 62209

NOTE : Aussi disponible en français sous le titre : Le logement des enfants au Canada

STATUS : New Completed Report
AVAILABILITY : CMHC Information Products

CITY PLANNING AND HUMAN SETTLEMENTS

ASSESSING THE FULL COSTS OF WATER, LIQUID WASTE, ENERGY AND SOLID WASTE INFRASTRUCTURE IN THE FRASER VALLEY REGIONAL DISTRICT

This project was conducted for CMHC by The Sheltair Group Inc. in order to demonstrate the benefits of using full-cost accounting tools and techniques to evaluate the social, economic, and environmental costs and impacts of urban growth. Using the Fraser Valley Regional District (FVRD) in British Columbia as a case study, a two-part project was conducted. The project resulted in the development of a methodology and an associated software tool for compiling and analysing detailed infrastructure profiles, and then using these profiles to assess the full costs of different growth scenarios. The report is organised in two parts: Part I provides background information about the FVRD, and presents a methodology specific to the Regional District. Part 2 describes the development of the software tool, and presents results of the application to the FVRD.

Prepared by The Sheltair Group Inc. and the International Centre for Sustainable Cities (Sustainable Cities Foundation). Prepared for: Research Division, Canada Mortgage and Housing Corporation; Planning Department, Fraser Valley Regional District, Growth Strategies Office, Ministry of Municipal Affairs. CMHC Project Officer: Doug Pollard. Ottawa: Canada Mortgage and Housing Corporation, 2000.

STATUS : New Completed Report

AVAILABILITY : Canadian Housing Information Centre

IMPLEMENTING THE OUTCOMES OF THE SECOND UNITED NATIONS CONFERENCE ON HUMAN SETTLEMENTS (HABITAT II): CANADA'S RESPONSE = MISE EN OEUVRE DES MESURES ADOPTÉES LORS DE LA DEUXIÈME CONFÉRENCE DES NATIONS UNIES SUR LES ÉTABLISSEMENTS HUMAINS (HABITAT II) : RAPPORT DU CANADA

The Second United Nations Conference on Human Settlements, Habitat II, was held in Istanbul, Turkey in June 1996. Habitat II brought together representatives from 171 countries to discuss an issue of global concern: shelter and human settlements in a rapidly urbanizing world. The countries participating in Habitat II adopted the "Habitat Agenda", a commitment by the world's nations to improve living conditions in the world's cities, towns, and villages.

In June 2001, five years after Habitat II, the General Assembly of the United Nations will hold a special session, popularly known as Istanbul + 5, to review and appraise implementation of the "Habitat Agenda" worldwide. In preparation for this session, countries have been invited to report on implementation of the Agenda. The United Nations Centre for Human Settlements (UNCHS) has developed reporting guidelines for use in the preparation of the national reports.

In response to the UNCHS invitation, Canada has prepared this Country Report, based upon a series of six Technical Reports. Part of this report focuses on qualitative and quantitative data addressing a series of identified indicators. These indicators are intended to measure progress relative to a number of commitments and recommendations in the Habitat Agenda. Canada' s indicators data has been provided, where possible, for Canada as a whole and for each of five major urban areas: Vancouver, Calgary, Toronto, Montreal, and Halifax.

The main body of this report is divided into seven sections: an introductory overview, and six thematic chapters as requested by the UNCHS:

- Overview: The Canadian Approach
- Chapter 1: Shelter
- Chapter 2: Social Development and Eradication of Poverty
- Chapter 3: Environmental Management
- Chapter 4: Economic Development
- Chapter 5: Governance
- Chapter 6: International Cooperation.

Within each chapter, five subsections provide the following information:

- The first subsection addresses the identified indicators for the topic of the chapter.
- The second and third subsections provide an overview of key federal and provincial government initiatives relevant to the topic of the chapter. The information contained in these subsections was obtained via surveys of federal and provincial agencies.
- The fourth subsection summarizes selected municipal/local best practices relating to the topic of the chapter. The examples presented have all been independently evaluated as best practices through the mechanism of the UNCHS Best Practices Program and Database.
- The final subsection is a synthesis of stakeholder views on the topic of the chapter, derived from a series of interviews and reflecting a diversity of viewpoints on a number of key issues.

CITY PLANNING AND HUMAN SETTLEMENTS

The Quebec Report was prepared by the Government of Quebec. It reviews the implementation of the Habitat Agenda in Quebec from the provincial perspective, and may be found in the Annex.

Canada Mortgage and Housing Corporation (CMHC) assumed overall responsibility for preparation of this report, with assistance from an Interdepartmental Steering Committee. Marbek Resource Consultants Ltd. undertook all research and writing, with contributions from Greg Lampert, Economic Consultant. Extensive assistance was provided by Statistics Canada and Environment Canada for the indicator data. Many other federal and provincial agencies provided information and input, as did a range of stakeholders. Provinces and territories that contributed to the development of the Country Report include Ontario, Quebec, New Brunswick, Manitoba, British Columbia, Prince Edward Island, Alberta, Saskatchewan, Newfoundland, and Nunavut. Ottawa: Canada Mortgage and Housing Corporation, 2001. ca 320 pages

Text in English and in French.

Order number: 62321

STATUS : New Completed Report

AVAILABILITY : CMHC Information Products and
http://www.cmhc-schl.gc.ca/en/search_results.cfm

CONSUMER PROTECTION

ISSUES PAPER ON LIABILITY IN HOUSE CONSTRUCTION

This project's objective is to produce a paper discussing the issue of liability in housing construction across Canada and identify who is and is not liable.

CMHC Project Officer : Mark Holzman

CIDN : 1920 0200001

Division : Research Division

STATUS : Ongoing Project

AVAILABILITY : Publication is not available

COOPERATIVE AND NON-PROFIT HOUSING

CRISIS SITUATIONS IN COOPERATIVES: INCREASING UNDERSTANDING TO IMPROVE INTERVENTION

This research project concerns crisis situations in housing cooperatives: the conditions in which they emerge, but especially the dynamics put in place to resolve them.

CMHC Project Officer : Marie Murphy

CIDN : 2018 0200001

Division : External Research Program

STATUS : Ongoing Project

Grant Recipient : Andrée Richard
Confédération québécoise des coopératives d'habitation
155, boul. Charest est, bureau 100
Quebec, Quebec G1K 3G6

AVAILABILITY : Publication is not available

COOPERATIVE AND NON-PROFIT HOUSING

PUBLIC HOUSING TENANT SELF-MANAGEMENT: AN EVALUATION OF THE ALEXANDRA PARK CO-OP CONVERSION PROCESS IN TORONTO

The purpose of this project is to produce an independent review and analysis of the conversion process that has taken place at Alexandra Park/Atkinson Co-op.

CMHC Project Officer : *Vernon Barkwell*	***CIDN*** : 2305 0200020
Division : Research Division	***STATUS*** : Planned
AVAILABILITY : Publication is not available	

HOME OWNERSHIP

HOMEOWNERSHIP EDUCATION AND COUNSELLING: AN EXAMINATION OF U.S. EXPERIENCE AND ITS RELEVANCE FOR CANADA

The purpose of this research project was to examine the American experience with a view to identifying ways of enhancing affordable, sustainable access to homeownership in Canada. In carrying out the U.S. segment of this research, in addition to conducting a literature review, a survey of homeowner education and counseling (HEC) providers and participants was conducted together with follow-up interviews. For the Canadian portion of the research, a broad range of housing and community organizations (180 in total) were surveyed and follow-up interviews conducted in order to develop a portrait of existing homeownership access support services in Canada.

The first part of the report provides a comprehensive summary and evaluation of the HEC experience in the U.S. Following a synopsis of the historical evolution of HEC, the report outlines the characteristics of HEC programs, services and delivery agencies; responses from HEC industry participants surveyed; how HEC is funded as well as recent developments affecting the HEC industry; specifically the establishment of the American Homeowner Education and Counseling Institute (AHECI), the increased focus on standardizing program content and delivery as well as the certification of HEC providers. Next, the report describes the role that HEC has had in addressing credit, affordability, psychological, cultural and linguistic access barriers to homeownership and is followed with a summary of the statistical studies, research and anecdotal evidence assessing the efficacy of HEC both in facilitating access to homeownership as well as in mitigating mortgage loan default risk. This section of the report concludes by summarizing the results of the US HEC industry expert survey in such areas as: the future of HEC and its key factors of success; why industry leaders are so interested in HEC; and outlines respondents' comments on introducing HEC-type initiatives elsewhere.

The second part of the report examines the access support services and delivery structures existing in Canada to help households access homeownership. It examines information and/or access gaps which indicate the need for enhancing homeowner education and counseling efforts in Canada. The results of a national survey examining the nature, scope and operation of existing homebuyer education and counseling efforts in Canada are then presented followed by an assessment of the differences between what is offered in the U.S. vis-a-vis Canada in addressing access barriers to homeownership. The section of the report concludes by examining whether the gaps in services available in Canada might be filled by introducing HEC-style initiatives that draw on best practices used in the U.S. under the auspices of a housing sector-driven public-private partnership arrangement.

Prepared by Hirshhorn Consulting Inc. and George McCarthy. Prepared for Research Division, Canada Mortgage and Housing Corporation. CMHC Project Officer: David Metzak. Ottawa: CMHC, 2000 (Housing Affordability and Finance Series) (162 pages)

HOME OWNERSHIP

Order number: 62173

NOTE 1: Aussi disponible en français sous le titre : Services de formation et de consultation pour l'accession à la propriété : examen de l'expérience américaine et de sa pertinence pour le Canada (PF 0435)
NOTE 2: No. 68 in the Research Highlights Socio-economic Series summarizes the results of this research and is available on the CMHC web site.

STATUS : New Completed Report
AVAILABILITY : CMHC Information Products

** SEE ALSO: *Technical Aspects of Home Ownership*, p. 45

HOMELESSNESS

APPLICABILITY OF A CONTINUUM OF CARE MODEL TO ADDRESS HOMELESSNESS

This project will examine the applicability to Canada of a continuum of care (CoC) model by conducting in-depth case studies of the CoC model in four American communities. The project will analyze the benefits and limitations of each CoC program and review its applicability in addressing homelessness in Canadian urban centres.

CMHC Project Officer : *Anna Lenk*
Division : Research Division
AVAILABILITY : Publication is not available
CIDN : 2353 0200
STATUS : Ongoing Project

CHILDREN AND YOUTH IN HOMELESS FAMILIES: SHELTER SPACES AND SERVICES

"Children and Youth in Homeless Families: Shelter Spaces and Services" provides a snapshot of how local communities across Canada meet the needs of homeless children and youth and their parents or guardians.

This research study involved a review of existing data and literature and two surveys of Canadian shelters. After the first screening survey, the second survey was administered to 112 shelters from large urban areas in most regions of the country.

While the findings may not be statistically representative of geographical regions or type of shelter, they highlight many interesting facts about the homeless children and youth who live in shelters with their families. For example, at the time of the study, over half of the children and youth were under the age of five, and problems with self-esteem and a sense of well-being were common. Not surprisingly, the families who used the shelters had no earned income and many relied on social assistance to meet their everyday needs.

The survey also examined the availability and adequacy of the shelters and their services. Overcrowding was a common problem, while the ability to provide facilities and services such as study areas, indoor and outdoor recreation areas, child care and counseling for children and youth depended on the type of shelter. More family violence shelters than general emergency or municipal shelters provided these facilities and services to their clientele.

The availability of services for parents such as job training, employment searches and on-site medical or legal services was also low in the general emergency shelters but higher in the family violence shelters and municipal programs.

The survey also asks where do homeless families go when they leave the shelters? The results indicate that most moved to their own apartment or house, while a much smaller number moved to another shelter, a rooming house or motel, or stayed with friends or moved to another city. Only a very small percentage lived on the streets.

Most of the families needed financial assistance and affordable housing to ensure a stable household for their children and youth. They also required counseling in life skills, child care and training and employment skills. Different shelters employed various strategies to meet these needs, ranging from home visits and follow-ups to help with budgeting and advocacy.

These are just a few of the insights obtained by this research study. But further research is recommended to provide a comprehensive inventory of the number, size and location of all the shelters serving homeless families with children and youth, and the types of services they provide. Also recommended for further study is an investigation of the health and long-term emotional effects that living in an emergency shelter has on children and youth.

Ottawa: Canada Mortgage and Housing Corporation, 2000. 117 pages

STATUS : New Completed Report
AVAILABILITY : Canadian Housing Information Centre

ENVIRONMENTAL SCAN: YOUTH HOMELESSNESS

The objective of the environmental scan is to provide:

- *an overview of the homeless youth population in Canada, including their shelter situation;*
- *an overview of the primary distinct housing and support issues relating to homeless youth;*
- *recent and upcoming Canadian initiatives, including publications, reports, conferences, projects, etc. on youth homelessness;*
- *names of agencies and key resource people working in the field; and*
- *types of effective housing interventions that have benefited homeless youth.*

CMHC Project Officer : *Jim Zamprelli*
Division : Research Division
AVAILABILITY : Publication is not available

CIDN : 01PL7-5639
STATUS : Ongoing Project

GOVERNANCE IN LOCAL PARTNERSHIPS TO ADDRESS HOMELESSNESS

This research will identify tools and strategies for problem-solving and decision-making within complex partnerships. This will be done by examining methods and structures of collaboration at the local level among community-based agencies and municipal governments, working on homelessness issues, using case studies.

CMHC Project Officer : *Anna Lenk*
Division : Research Division
AVAILABILITY : Publication is not available

CIDN : 2426 0200
STATUS : New Project

HOMELESS INDIVIDUALS AND FAMILIES INFORMATION SYSTEM (HIFIS)

In order to help shelters and municipalities develop useful and comparable information on homeless people, in 1995 CMHC began a program of research to and develop the Homeless Individuals and Families Information System (HIFIS) as a user-friendly software application. HIFIS was designed by and for shelters throughout the country to meet their administrative operating requirements while at the same time collecting information that will provide quality data on homeless shelter clients. Municipalities will also benefit greatly from the use of HIFIS. By identifying the number and characteristics of homeless people served in shelters in their jurisdiction, many municipalities will, for the first time, gain a basic understanding of the homeless population in their region. As a result, local governments will be able to better plan, monitor and evaluate policies and programs designed to reduce the problem of homelessness.

In 2000, CMHC pilot tested the software in over 100 shelters in 8 of Canada's largest municipalities located all across Canada. After almost six years of research and development, CMHC has now passed the HIFIS system over to the National Secretariat on Homelessness to take it from being a pilot tested software to being an operational system with support available across Canada. HRDC intends that HIFIS assist local agencies throughout the country.

CMHC Project Officer : *John Engeland*
Division : Research Division
CIDN : 2295 0200003
STATUS : Completed

HOUSING NEEDS OF LOW-INCOME PEOPLE LIVING IN RURAL AREAS

This project is intended to be a preliminary investigation of the housing needs of low-income people living in rural areas, including the existence of homelessness. The methodology includes a statistical profile, mainly from the Census, but supplemented by any surveys which have been done by the provinces/territories and by qualitative research to more finely identify issues affecting very low income or otherwise vulnerable households.

CMHC Project Officer : *Anna Lenk*
Division : Research Division
AVAILABILITY : Publication is not available
CIDN : 2367 0200
STATUS : Planned

HOUSING STABILITY AND MENTAL ILLNESS

The objective of this project is to evaluate the effectiveness of programs to promote housing stability for the mentally ill population at risk of homelessness. The research will look at a sample of programs and service providers in order to answer the question of which interventions and which factors most effectively help this population to access and, more importantly, maintain stable housing. Examples of housing-related interventions are supportive housing, residential care, support service agreements with private or social housing landlords, transitional housing, respite care, discharge planning, housing help and mediation services, and crisis response.

CMHC Project Officer : *Anna Lenk*
Division : Research Division
AVAILABILITY : Publication is not available
CIDN : 2290 0200
STATUS : Ongoing Project

HOMELESSNESS

INVOLVING CLIENTS IN ADDRESSING HOMELESSNESS

This research project will explore and document methods that have successfully involved the homeless and formerly homeless population (including the various sub-populations of homeless people such as families, young people, women, Aboriginal people, persons with disabilities, people with mental illness and addictions, elderly people, refugees, and new immigrants) in:

- assessing their various housing-related needs;
- determining effective housing interventions;
- participating in the development of housing interventions;
- participating in the ongoing management and operation of housing projects; and
- project evaluation.

Project results will form the basis of a how-to guide on methods to involve homeless and formerly homeless people in determining and implementing housing solutions.

CMHC Project Officer : Jim Zamprelli
CIDN : 2395 0200
Division : Research Division
STATUS : New Project
AVAILABILITY : Publication is not available

STUDY OF TENANT EXITS FROM HOUSING FOR CHRONICALLY HOMELESS PEOPLE

This project's objective is to study the current residents and the recent evictees from a Toronto agency that has a long history of providing innovative housing and related services for the chronically homeless and 'hard to house'. It is a study of the users of the services provided by the agency, not the agency itself.

CMHC Project Officer : *Anna Lenk*
CIDN : 2305 0200013
Division : External Research Program
STATUS : New Project
AVAILABILITY : Publication is not available

HOUSE CONSTRUCTION INDUSTRY

HOUSING CONSTRUCTION INDUSTRY: CHALLENGES AND OPPORTUNITIES FOR THE 21ST CENTURY

This research project will examine the evolution of the structure of the housing industry in Canada since the mid-1980s, the industry's current and expected future challenges in the period to 2010, and the ways it might adapt. The study is will also identify research issues which merit further investigation and study.

CMHC Project Officer : *Ian Melzer*
CIDN : 1987 0200001
Division : Research Division
STATUS : Ongoing Project
AVAILABILITY : Publication is not available

SKILL SHORTAGES IN THE RESIDENTIAL CONSTRUCTION INDUSTRY

This paper looks at why labour shortages arise and persist, the possible consequences of labour shortages, the tools available to manage labour supply and demand, policy implications and future research requirements.

Rev. edition. Prepared by Morley Gunderson, MKG Associates. CMHC Project Officer: David D'Amour. Ottawa: Canada Mortgage and Housing Corporation, 2001. 125 pages

STATUS : New Completed Report
AVAILABILITY : Canadian Housing Information Centre

STUDY ON THE HOUSING SECTOR'S PRODUCTIVITY GROWTH

The objectives of this project are to measure the residential construction sector's productivity, assess the productivity drivers in the sector and, where feasible, by housing type, explain the productivity trends and explain the regional variations.

CMHC Project Officer : *Eric Tsang*
Division : Strategic Policy & Planning
AVAILABILITY : Publication is not available
CIDN : 2406 0100001
STATUS : Planned

HOUSING

HOUSING IN CANADA (HIC) CD-ROM DATA BASE

CMHC has developed an electronic CD data base called Housing In Canada (HIC) which provides housing interest groups with direct hands-on access to comprehensive data on households and housing conditions using CMHC's custom 1996 housing conditions indicators data derived from the 1996 Census and comparing it with data from the 1991 Census. The data base enablesgroups to have the hands-on capability to examine how and why housing conditions are changing.

HIC presents key demographic and socio-econo,ic data (e.g. household type, income, age, gender and period of immigration) matched to comprehensive housing data (e.g. dwelling type, age and condition; tenure, shelter cost,suitability, affordability and the existence and depth of housing need). HIC employs today's recognzied standards for housing suitability, adequacy and affordability to facilitate the assessment of the state of Canada's housing.

The software profiles most of Canada's households: non-farm, non-Native; non-farm, Native off-reserve; Native on-reserve; and farm households. HIC includes aggregated data for: Census Metropolitan Areas (CMAs) and main sub-divisions(CSDs); Regional Municipalities; residual non-CMA urban and urban areas; and provinces, territories and Canada. The data provided focuses on 199, but provides comparison data for 1991 to enable users to identify the direction and extent of recent changes in community's housing.

The bilingual 20/20 software (included) is available in the form of easily manageable CD-ROM disks;for each province and territory, and for each census metropolitan area (CMA). Each provincial/territorial CD-ROM contains Canada level data on it to provide context for all analyses. Similarly, each CMA CD-ROM contains two sets of all CMA average data for comparison; one set for the province in which the CMA is located and the other for all of Canada.

***CMHC Project Officer :** John Engeland*
***CIDN** : 2126 0200002*
Division : Research Division
***STATUS** : Completed*
AVAILABILITY : Further information on HIC is available from CMHC's web site: http://www.cmhc-schl.gc.ca/mkrinfo/housingincanada.html

INTERGENERATIONAL HOUSING TRENDS AND CHALLENGES

This project's objective is to complete an issue paper on intergenerational housing trends and challenges.

***CMHC Project Officer :** Leanne Elliott*
***CIDN** : 2409 0100001*
Division : Strategic Policy & Planning
***STATUS** : Planned*
AVAILABILITY : Publication is not available

SPECIAL STUDIES ON 1996 CENSUS DATA

This project is composed of developing a series of concise studies that explore the housing conditions reported in the 1996 Census of Canada. Six studies are currently completed and available on the CMHC web site:

Research Highlights Issue 55-1 Canadian Housing Conditions uses data primarily at the national level, explains commonly used terminology, and examines the largest groupings of households.
Research Highlights Issue 55-2 Housing Conditions in Metropolitan Areas examines Canada's 25 Census Metropolitan Areas.
Research Highlights Issue 55-3 Housing Conditions of Immigrants discusses the housing conditions of households whose primary maintainer is an immigrant to Canada.
Research Highlights Issue 55-4 Housing Canada's Children examines the housing environment of Canada's children.
Research Highlights Issue 55-5 Changes in Canadian Housing Conditions, 1991-96 examines changes in the housing conditions of non-farm, non-Native households between the 1991 and 1996 Censuses.
Research Highlights Issue 55-6 Housing Conditions of Native Households examines the housing conditions of households defined as Native using the self-identification definition available in the Census for the first time in 1996.

Subsequent studies are planned to examine smaller groupings of interest, such as: seniors; people who live alone; families; tenants; women; and young people.

***CMHC Project Officer :** Ian Melzer*
***CIDN** : 1988 0200003*
Division : Research Division
***STATUS** : Ongoing Project*
AVAILABILITY : Canadian Housing Information Centre and on the Internet

ACT REGIONAL STAKEHOLDER INFORMATION SESSIONS

Ten information sessions will be held across Canada to inform housing stakeholders of regulatory reform solutions that have been generated under the Affordability and Choice Today program. The intent is to encourage replication of these solutions. Stakeholders will include municipalities, home builders, non-profit housing groups and other housing specialists.

CMHC Project Officer : *Susan Fisher*
STATUS : Ongoing Project
Division : Research Division
AVAILABILITY : No Report will be Published

AFFORDABLE HOUSING ADVISOR

This project will assemble an electronic database of strategies that have been successfully used to improve housing affordability. These strategies will appear under categories of activity such as: Policy and Regulation; Housing and Community Design; Financing and Tenure; Construction and Technology; Operations and Management; and Redevelopment. Each strategy will be explained and illustrated with two example projects. The database will be accessible through the CMHC web site and will be fully searchable and linked to relevant sources of information of the strategies and examples. The sources will include CMHC reports, publications by other organizations and individuals and web sites of public, non-profit and non-government organizations. This database would be a virtual encyclopedia on affordable housing tools.

CMHC Project Officer : *Fanis Grammenos*
CIDN : 2053 0200004
Division : Research Division
STATUS : Ongoing Project
AVAILABILITY : Publication is not available

COCHRANE, ALBERTA, COMMUNITY-BASED AFFORDABLE HOUSING INITIATIVE, PLANNING AND ENGINEERING SERVICES DEPARTMENT, TOWN OF COCHRANE, ALBERTA = INITIATIVE DE LOGEMENTS À PRIX ABORDABLE DE LA VILLE DE COCHRANE (ALBERTA), SERVICE DE L'URBANISME ET DU GÉNIE, VILLE DE COCHRANE (ALBERTA)

The objective of this project was to develop affordable housing policies that could be incorporated into the town of Cochrane, Alberta, Land Use Bylaw and to develop a set of guidelines for implementation of the policies by town planners in conjunction with the development industry.

The Cochrane Town Council amended its Land Use Bylaw to
-- allow accessory (secondary) suites and garden suites;
-- increase densities in all residential zoning categories;
-- to create a new zoning category for multiples taller than four storeys; and the
Town Council adopted a replacement Municipal Development Plan that incorporated new policies that addressed requirements for housing choice availability.

By the summer of 1999, Cochrane was seeing positive results from the affordable housing project and the resultant regulatory reforms.

Case study written by: Word-Works Communications Services. Prepared for: Federation of Canadian Municipalities; Canadian Home Builders' Association; Canadian Housing and Renewal Association; Canada Mortgage and Housing Corporation. Ottawa: FCM; CHBA; CHRA; CMHC, 2000. (Affordability and Choice Today (A.C.T.) Regulatory Reform Project; ACT Case Study) 48 pages

Order number: 62000

STATUS : New Completed Report
AVAILABILITY : CMHC Information Products

GUIDE TO DEVELOPING A MUNICIPAL AFFORDABLE HOUSING STRATEGY

The objective of this study is to develop a guide on how to design, implement and monitor a municipal affordable housing strategy, including information on the range of instruments that could be included in such a strategy. The project team will undertake the following key tasks to ensure the guide is of greatest use to its intended users, municipalities, including:

1. a literature and Internet search on municipal housing strategies and housing policy tools;
2. a national scan of provincial officials and non-governmental organizations and consultations with municipalities with experience in conducting an affordable housing strategy;
3. consultations with municipalities that do not have a housing strategy but who are willing to work with the consultants to ensure that the guide addresses practitioners' needs; and
4. consultations with local community and non-profit housing developers and affordable housing sponsors.

CMHC Project Officer : *Fanis Grammenos*
CIDN : 2274 0200001
Division : Research Division
STATUS : Ongoing Project
AVAILABILITY : Publication is not available

PHILANTHROPIC SUPPORT FOR AFFORDABLE HOUSING: FINAL REPORT

This research project is aimed at providing sponsors of affordable housing with a detailed situational analysis background overview of the philanthropic sector. The study includes an overview of the financial economics associated with producing affordable housing in Canada; an examination of the charitable sector and donor community; and a look at the tax implications of donations to charities and non profit organizations. The report describes the nature, characteristics and regional variations in charitable giving in Canada; sources of charitable donations and funding levels as well as alternative fund raising methods used to solicit financial support. This component of the research also provides an overview of the nature, size and characteristics of the donor community in Canada and presents practical insights into the size, nature, geographic distribution and related factors impacting donations from individual Canadians, the corporate community and foundations. Sixteen case studies are used to illustrate how affordable housing sponsors have been able to obtain philanthropic support for creating affordable housing projects.

Prepared by Manifest Communications Inc. in association with Steve Pomeroy, Focus Consulting and François Lagarde. CMHC Project Officer: David Metzak. Ottawa: Canada Mortgage and Housing Corporation, 2000. (Housing Affordability and Finance Series) ix, 134 pages.

Order Number: 62146

NOTE 1: Aussi disponible en français sous le titre : Appui des organisations philanthropiques à la production de logements abordables (62147)
NOTE 2: No. 67 in the Research Highlights Socio-economic Series summarizes the results of this research and is available on the CMHC web site.

STATUS : New Completed Report
AVAILABILITY : CMHC Information Products

HOUSING AFFORDABILITY

REFINING OF CMHC HOUSING AFFORDABILITY INDICATORS

The purpose of this project is to undertake a study to refine CMHC housing affordability indicators.

CMHC Project Officer : *Louis Trottier* ***CIDN*** : 2320 1000001
Division : Market Analysis Centre ***STATUS*** : Ongoing Project
AVAILABILITY : Publication is not available

RISK SHARING AND LOAN GUARANTEE MEASURES

The purpose of this project is to examine the Canadian and United States experience, primarily within the public sector domain, of the application of risk sharing and loan guarantee measures employed by community and affordable housing development agencies, lenders, mortgage securitizers and insurers as a means to facilitate the production of affordable housing. The study is to examine the potential transferability and adaptability of the US measures to the Canadian affordable housing environment and context. To the extent possible, stakeholder testimony, anecdotal evidence and program/project evaluations completed to date will be examined to assess the relative success of such measures.

CMHC Project Officer : *Lisa Daher* ***STATUS*** : New Project
Division : Research Division **AVAILABILITY :** Publication is not available

STATE AND PROVINCIAL AFFORDABLE HOUSING MANDATES AND MEASURES

The objective of this project is to identify and describe affordable housing mandates and measures being used by various states in the U.S. and provinces in Canada which essentially encourage their municipalities to use the regulations associated with the development approval process, but without financial subsidies, to encourage the private sector to provide affordable housing. The final report will be of interest to provincial and municipal planners, housing analysts, finance officers, and third sector housing providers.

CMHC Project Officer : *David Metzak* ***CIDN*** : 1670 0200003
Division : Research Division ***STATUS*** : Ongoing Project
AVAILABILITY : Publication is not available

HOUSING AND IMMIGRATION

HOUSING CHOICE AND ADAPTABILITY FOR AFRICAN REFUGEES: THE CANADIAN AFRICAN NEWCOMER AID CENTRE, TORONTO (ONTARIO) = CHOIX ET ADAPTABILITÉ DES LOGEMENTS DESTINÉS AUX RÉFUGIÉS AFRICAINS : THE CANADIAN AFRICAN NEWCOMER AID CENTRE, TORONTO (ONTARIO)

This report describes the work of the Canadian African Newcomer Aid Society of Toronto (CANACT), to develop an adaptable housing model for refugees which would take into consideration the unique needs of refugees, including the changes likely to occur in family size and composition through family reunification. Formally called "Housing Choice and Adaptability for Refugees", the project was undertaken in cooperation with Toronto's Department of Housing and the Department of Planning and Development. The project set out to:

HOUSING AND IMMIGRATION

- consult with African refugees to determine their present and future housing needs;
- translate these needs into design guidelines;
- identify regulatory issues relevant to the creation of such housing; and
- acquire land and build a demonstration project of 16 units.

Although the CANACT project never achieved its ultimate goal of actually building homes or developing a viable ownership model, it produced a blueprint that other housing providers can use to develop their own housing projects for new immigrants and refugees. The City of Toronto's study of the zoning implications of CANACT's design guidelines can also be useful to other municipalities as it identifies the kind of permitted use categories needed to accommodate the housing needs of African refugees and newcomers.

Case study written by: Word-Works Communications Services. Prepared for: Federation of Canadian Municipalities; Canadian Home Builders' Association; Canadian Housing and Renewal Association; Canada Mortgage and Housing Corporation. Ottawa: FCM; CHBA; CHRA; CMHC, 1999. (Affordability and Choice Today (A.C.T.) Regulatory Reform Project; ACT Case Study)

Order Number: 61993

STATUS : New Completed Report
AVAILABILITY : CMHC Information Products

HOUSING EXPORT OPPORTUNITIES

ASSESSMENT OF PREFABRICATED BUILDING SYSTEMS INDUSTRY

This study will research the prefabricated building industry in Sweden and Finland.

CMHC Project Officer : *Louis Musto*
Division : Research Division
AVAILABILITY : Publication is not available
CIDN : 1979 0200002
STATUS : New Project

CANADA POLAND RESIDENTIAL REAL ESTATE INVESTMENT MODEL: AN EVALUATION OF POLAND'S RESIDENTIAL REAL ESTATE MARKET: SUMMARY

This evaluation of Poland's residential real estate market provides information on the following:
- An economic overview
- Foreign investment regulations
- Residential construction
- The property market
- The legal framework for a housing financing system
- Development prospects and an Investment model
- Construction permits, the Polish standardization system, and custom duties
- Types of housing systems preferred by Polish consumers
- Business practices and useful contacts.

Ottawa: Canada Mortgage and Housing Corporation, Canadian Housing Export Centre, 2001. 21 pages.

Note: Publié aussi en français sous le titre : Étude de marché dans le secteur de l'immobilier résidentiel

STATUS : New Completed Report
AVAILABILITY : Canadian Housing Information Centre

CANADIAN HOUSING EXPORTERS IN THE KOREAN HOUSING MARKET

The objective of this project is to analyze the Korean housing market and to identify market potentials and opportunities for Canadian housing exporters in the Korean housing market.

CMHC Project Officer : *Jay Thakar*
Division : Canadian Housing Export Centre
AVAILABILITY : Publication is not available
CIDN : 2332 0900001
STATUS : Planned

CONTRIBUTION TO A STUDY ON PACIFIC RIM MARKETS FOR TERMITE-RESISTANT WOOD PRODUCTS

The objective of this project is to study the Pacific Rim markets for termite-resistant wood products.

CMHC Project Officer : *Jay Thakar*
Division : Canadian Housing Export Centre
AVAILABILITY : Publication is not available
CIDN : 2104 0900001
STATUS : Ongoing Project

DEVELOPMENT OF A GUIDE TO THE UNITED KINGDOM BUILDING REGULATIONS

The objective of this project is to develop a guide on the building regulations in the United Kingdom.

CMHC Project Officer : *Terry Robinson*
Division : Canadian Housing Export Centre
AVAILABILITY : Publication is not available
CIDN : 1953 0900
STATUS : New Project

DEVELOPMENT OF AN EXPORT TOOL-KIT FOR CHINA

This project's objective is to prepare a comprehensive assessment and collection of information pertaining to the export of Canadian housing product to China.

CMHC Project Officer : *Murray Rasmussen*
Division : Canadian Housing Export Centre
AVAILABILITY : Publication is not available
CIDN : 2347 0900001
STATUS : New Project

HOUSING AND BUILDING MARKET IN CHILE, CHINA, GERMANY, JAPAN, KOREA, POLAND, UNITED KINGDOM

For each of the countries listed above, this report provides the following information:

- quick facts on the country
- characteristics of its housing and building products market
- building technology standards
- building codes and standards
- information on the business environment, domestic and foreign competition, market entry strategies and specific business opportunities
- key contacts, events, references, and internet sources of information.

Prepared for Canada Mortgage and Housing Corporation. Prepared by Department of Foreign Affairs and International Trade. Ottawa: Canada Mortgage and Housing Corporation, 2001.

Publié aussi en français sous le titre : Le marché du logement et de la construction en : Allemagne, Chili, Chine, Corée, Japon, Pologne, Royaume-Uni

STATUS : New Completed Report

AVAILABILITY : Canadian Housing Information Centre

INVESTIGATION OF CO-VENTURES AND EXPORT POTENTIAL FOR BUILDING PRODUCTS AND MATERIALS RELATED TO SUSTAINABLE DEVELOPMENT IN CHINA

The purpose of this project is to explore the opportunities that exist in China for co-ventures and the export of Canadian products, technology and materials related to sustainable development to lower the impact on the natural environment and/or promoting a healthy indoor environment.

CMHC Project Officer** : Murray Rasmussen* ***STATUS : Planned

Division : Canadian Housing Export Centre

AVAILABILITY : Publication is not available

PENETRATION OF THE MULTIPLE HOUSING SECTOR IN THE UNITED STATES

This document is intended to be used as a reference tool by prime contractors and trade contractors alike working in the contractual construction industry and who envision expanding their business into the United States. The purpose of this study is to identify the ten American metropolitan regions that offer the highest potential concerning residential real estate, particularly apartment complexes, and the ten metropolitan regions of the eastern United States that offer the highest potential for non-residential real estate. The study also outlines the methods used by the current exporters to bypass any barriers to entry.

Prepared by Claire Piché and Samir Abboud of COPRIM. Prepared for Canadian Housing Export Centre, Canada Mortgage and Housing Corporation and Association de la construction du Québec. CMHC Project Officer: Carol M. Kerley. Ottawa: CMHC, 2000.

NOTE : Aussi disponible en français sous le titre : Pénétration du secteur de l'habitation multiple aux États-Unis

STATUS : New Completed Report

AVAILABILITY : Canadian Housing Information Centre and available in PDF file on CMHC's Web site. To download this document visit CMHC's Web site at :
http://www.cmhc-schl.gc.ca/en/homadoin/excaprex/repu/repu_001.cfm

RESEARCH STUDY ON THE HOUSING MARKET IN THE UNITED KINGDOM

This report describes the housing market in the United Kingdom, providing an overview of the market, statistics on newly built housing, and information on its housing technology. It covers the major challenges facing UK housing and outlines the building technology and standards environment. The final section deals with the key issues concerning imported housing and products to the UK, trading relationships, and recommended market entry strategies for Canadian housing companies. A typical performance specification for timber frame use in the UK is included.

Ottawa: Canadian Housing Export Centre, Canada Mortgage and Housing Corporation, 2000. 52 pages

NOTE : Aussi disponible en français sous le titre : Étude sur le marché de l'habitation au Royaume-Uni

STATUS : New Completed Report
AVAILABILITY : Canadian Housing Information Centre

RETROFITTING RUSSIA'S HOUSING STOCK: OPPORTUNITIES AND OBSTACLES FOR CANADIAN EXPORTERS

The purpose of this project is to identify several basic business development strategies which could be employed by Canadian firms to practically and realistically respond to the market opportunities represented by the Russian housing sector.

CMHC Project Officer : *Oliver Drerup*
Division : External Research Program
AVAILABILITY : Publication is not available
CIDN : 1830 0200001
STATUS : Ongoing Project

STUDY OF THE MIDWEST BUILDING PRODUCTS MARKET IN THE REGIONS OF ILLINOIS, WISCONSIN AND MISSOURI

The purpose of this project is to undertake a study to provide Canadian companies with a general overview of the market forces within the building products sector in the three state regions of Illinois, Wisconsin, and Missouri.

CMHC Project Officer : *Carol M Kerley*
Division : Canadian Housing Export Centre
AVAILABILITY : Publication is not available
CIDN : 2172 0900001
STATUS : Ongoing Project

STUDY ON U.S. RENOVATION MARKET

This study covers recent changes, trends, and opportunities for the renovation market in the United States. It includes an overview of the market, forecasts and detailed lists of the top American remodeling companies, independent lumber yards and home centres, leading retailing chains, home improvement product retailing headquarters, wholesaling cooperatives, distributors, representatives and agents.

Prepared by The Starr Group Inc. Prepared for Canadian Housing Export Centre, Canada Mortgage and Housing Corporation. CMHC Project Officer: Carol M. Kerley. Ottawa: CMHC, c1999.

NOTE : Aussi disponible en français sous le titre : Étude sur le marché de la renovation aux États-Unis

STATUS : New Completed Report
AVAILABILITY : Canadian Housing Information Centre

SUSTAINABLE DEVELOPMENT IN CANADA

The objective of this project is to investigate the application of Canadian sustainable development in the Japanese market.

***CMHC Project Officer** : Jay Thakar*
Division : Canadian Housing Export Centre
AVAILABILITY : Publication is not available
STATUS : Ongoing Project

TRENDS AND CHANGES IN JAPANESE BUILDING REGULATIONS

To facilitate the development of export strategies for the Japanese housing market, this report provides information on new government regulation in Japan and the effect of these regulations on imported housing.

add a line →

The report provides an in-depth assessment of the four key issues driving the sweeping changes taking place in Japan's housing industry: Revised Building Standard Law, mandatory 10 year product warranties, Housing Quality Assurance Law (HQAL), and new Government Housing and Loan Corporation (GHLC) criteria.

Prepared by David Cohen and Christopher Gaston. Ottawa: Canada Mortgage and Housing Corporation, c2001. 43 pages.

NOTE : Aussi disponible en français sous le titre : Tendances et changements au niveau des règlements de construction japonais

STATUS : New Completed Report
AVAILABILITY : Available in PDF file on CMHC's Web site. To download this 43 page document visit CMHC's Web site at: http://www.cmhc-schl.gc.ca/en/homadoin/excaprex/repu/repu_010.cfm

HOUSING EXPORT OPPORTUNITIES

TRENDS IN THE JAPANESE HOUSING MARKET

Japan is one of the world's largest housing markets. Canada is a leading exporter of building materials and services to Japan and has actively promoted the use of Canadian housing systems through a variety of initiatives. Imports of housing, however, comprise only a small proportion of total Japanese housing activity so the potential to expand this market share presents attractive opportunities for Canadian housing producers and suppliers. This report provides 1. an overview of recent trends in the Japanese housing market and housing imports: 2. an assessment of market opportunities for Canadian housing companies in Japan; and 3. identifies a number of potential market niches including:-- large-scale wooden buildings;-- exterior finishes on buildings in quasi-fire protection areas;-- energy-efficient and healthy housing;-- housing for the elderly; and-- the renovation market.

Prepared by Greg Lampert Economic Consultant and Shin Ikehata, Cyber Builders International Inc. Prepared for Canadian Housing Export Centre, Canada Mortgage and Housing Corporation. Ottawa: CMHC, 1999, c2000. 66 pages

NOTE : Aussi disponible en français sous le titre : Tendances du marché de l'habitation japonais

STATUS : New Completed Report

AVAILABILITY : Canadian Housing Information Centre and available in PDF file on CMHC's Web site. To download this document visit CMHC's Web site at : http://www.cmhc-schl.gc.ca/en/homadoin/excaprex/repu/repu_001.cfm

UPDATE OF THE STUDY ON MID-ATLANTIC BUILDING MATERIALS MARKET

To support an update of the study entitled "Business Opportunities for Canadian Building Materials Manufacturers in the Mid-Atlantic Region of the U.S. of America" with new actual and forecast data.

CMHC Project Officer : *Carol M Kerley*

Division : Canadian Housing Export Centre

AVAILABILITY : Publication is not available

CIDN : 2228 0900001

STATUS : Ongoing Project

HOUSING FORECASTING AND DEMAND

DEMOGRAPHIC CHANGES AND REAL HOUSING PRICES IN CANADA

With the aging of the baby-boom generation, the number of young households is falling in Canada. This study examines the contentions of the demographer David Foot, and of earlier work by Mankiw and Weil, that in such a population, the number of home buyers is bound to decrease, causing the prices of residential real estate to drop substantially. In addition to reviewing the relevant economic literature, it constructs econometric models using Canadian national and provincial data and uses them to assess whether expected demographic changes in Canada are likely to trigger a pronounced downward trend in residential real estate prices.

The study concludes that even if it is true that demographics may exert downward pressure on real estate prices, such impact will probably be dominant only in certain regions, depending even there on their rates of growth in real income. In other regions, the real price should have a tendency to rise.

HOUSING FORECASTING AND DEMAND

Prepared by Mario Fortin and André Leclerc. Prepared for Research Division, Canada Mortgage and Housing Corporation. CMHC Project Officer: Ian Melzer. Ottawa: CMHC, 1999, c2000. (Housing Affordability and Finance Series) 142 pages.
Order Number: 62152

NOTE 1: Aussi disponible en français sous le titre : Les changements démographiques et le prix réel des logements au Canada (62153) 146 pages.
NOTE 2: No. 62 in the Research Highlights Socio-economic Series summarizes the results of this research and is available on the CMHC web site.

STATUS : Completed Report
AVAILABILITY : CMHC Information Products

HOUSING MARKET

IMPACT OF CONVERSIONS OF RENTAL TO OWNERSHIP UNITS ON HOUSING MARKETS IN ONTARIO

This study seeks to generate a framework for addressing the changes in the availability of affordable housing stock in large Ontario cities through conversions of rental units and, by extension to understand the impact of these conversions on other components of the housing market, in particular the new homes market.

CMHC Project Officer : *Alain Miguelez*
Division : Market Analysis Centre
AVAILABILITY : Publication is not available
CIDN : 2226 1000001
STATUS : Ongoing Project

MORTGAGES AND HOUSING FINANCE

EVOLVING IMPACT OF E-COMMERCE ON HOUSING FINANCE ACCESS AND AFFORDABILITY: US EXPERIENCE AND LESSONS FOR CANADA

The objective of this research is to examine the significant changes arising in the housing finance market place resulting from e-commerce and their impact on housing finance access and housing affordability. An overview of experience to date and international comparisons with the US will be instructive to Canadian stakeholders and will assist in developing and focusing a program of useful related directed research.

The research project will entail a literature review, Internet searches, interviews and discussions with knowledgeable US and Canadian industry participants, government regulatory agencies, housing sector stakeholders and other key informants.

CMHC Project Officer : *Ian Melzer*
Division : Research Division
AVAILABILITY : Publication is not available
CIDN : 2389
STATUS : Ongoing Project

EVALUATION OF THE PHYSICAL REQUIREMENTS TO GO UP ACCESS RAMPS IN MANUAL WHEELCHAIRS AMONG ADULTS AND SENIORS

This study concerns an analysis of the necessary physical requirements to go up access ramps in manual wheelchairs.

CMHC Project Officer : *Luis Rodriguez*
Division : External Research Program
AVAILABILITY : Publication is not available
CIDN : 2305 0200019
STATUS : New Project

EXAMINATION OF THE HOUSING CHOICES OF PERSONS WITH DISABILITIES

This project's objective is to have accurate information on the housing choices of people aged 15 and over with mobility and agility disabilities.

CMHC Project Officer : *Tom Parker*
Division : External Research Program
AVAILABILITY : Publication is not available
CIDN : 2144 0200019
STATUS : Ongoing Project

EXPERIENCES OF MOTHERS WHO USE WHEELCHAIRS IN HOMEMAKING AND CHILD CARE

This proposed study will use qualitative methods to examine the homemaking activities and experiences of mothers who use wheelchairs for mobility. It will explore the interactions among the home environment, gender, and disability.

CMHC Project Officer : *Tom Parker*
Division : External Research Program
AVAILABILITY : Publication is not available
CIDN : 2305 0200017
STATUS : New Project

HOUSING CONDITIONS OF PERSONS WITH HEALTH AND ACTIVITY LIMITATIONS IN CANADA, 1991: A RETROSPECTIVE

This study provides, for the first time, an overall perspective on the general housing conditions of Canadians with health and activity limitations. Being a retrospective, it is based on data from the 1991 Census of Canada linked to the post-censal Health and Activity Limitations Survey (HALS). By comprehensively profiling housing conditions in 1991, the study forms a foundation for work that CMHC plans to do in linking data from the 2001 Census of Canada with the subsequent Health and Activity Limitations Survey.

The conclusions of the study are:

- Persons with disabilities are significantly more likely than other Canadians to be in core housing need, especially those who rent, are moderately or severely disabled, live alone, or are women or single mothers. - Many need housing adaptations related to their disability but cannot afford them.
- Nonetheless, the great majority are satisfied with their present dwelling. Even most of those seeking change would prefer to adapt their current homes rather than move.

Based on research by Aron Spector, Ark Research Associates for John Engeland, Research Division, Canada Mortgage and Housing Corporation. Ottawa: CMHC, c2000. (Distinct Housing Needs Series Research Report) ix, 24 pages.

Order number: 62026

NOTE : Aussi disponible en français sous le titre : Conditions de logement des personnes aux prises avec des problèmes de santé et des limitations d'activité au Canada, en 1991 : Rétrospective

STATUS : New Completed Report
AVAILABILITY : CMHC Information Products

MAJOR MAINTENANCE AND RESIDENTIAL RENOVATION: A SURVEY OF MEANS TO IMPROVE THE ARCHITECTURAL ACCESSIBILITY OF EXISTING BUILDINGS

The objective of this project is to study the extent to which it is possible to integrate architectural accessibility into existing residential buildings during major maintenance or common renovation work planned by an owner.

CMHC Project Officer : *Rachelle Luengas*
CIDN : 2021 0200001
Division : External Research Program
STATUS : Ongoing Project
AVAILABILITY : Publication is not available

SPACE EFFICIENT UNIVERSAL DESIGN INNOVATIONS

The research will evaluate design innovations which have been developed specifically to enhance access for people who use wheelchairs.

CMHC Project Officer : *Tom Parker*
CIDN : 2009 0200001
Division : External Research Program
STATUS : Ongoing Project
Grant Recipient : Gloria M. Gutman
Professor, Gerontology Research Centre
Simon Fraser University
2800-515 West Hastings Street
Vancouver BC V6B 5K3
AVAILABILITY : Publication is not available

ACTION PLAN FOR REVITALIZING A COMMERCIAL ARTERY: COLLECTIF EN AMÉNAGEMENT URBAIN HOCHELAGA-MAISONNEUVE, MONTRÉAL, QUÉBEC = PLAN D'ACTION POUR LA RVITALISATION D'UNE ARTÈRE COMMERCIALE : COLLECTIF EN AMÉNAGEMENT URBAIN HOCHELAGA-MAISONNEUVE, MONTRÉAL, QUÉBEC

Hochelaga-Maisonneuve is a neighbourhood located in the east end of Montréal, Québec. In the fall of 1996, an umbrella group of local community organizations, the Collectif en aménagement urbain Hochelaga-Maisonneuve, received an A.C.T. grant in order to identify ways to revitalize a once vibrant section of Ste-Catherine Street in the southwestern part of the Hochelaga-Maisonneuve district. The project had three main objectives:
-- modify zoning bylaws to encourage neighbourhood revitalization;
-- improve the neighbourhood's image by minimizing factors that are driving away investment and people; and
-- encourage property owners to participate actively in improving their community.
Specifically, the project team undertook the following activities:
-- updated the study area's land-use maps;
-- consulted with municipal housing authorities, local business associations and community groups; and;
-- prepared a revitalization plan.

This A.C.T. initiative identified obstacles to revitalization found in the zoning bylaw as well as other factors contributing to the area's decline.

Case study written by: Julie Tasker-Brown. Prepared for: Federation of Canadian Municipalities; Canadian Home Builders' Association; Canadian Housing and Renewal Association; Canada Mortgage and Housing Corporation. Ottawa: FCM; CHBA; CHRA; CMHC, 2000. (Affordability and Choice Today (A.C.T.) Demonstration Project; ACT Case Study)

STATUS : New Completed Report
AVAILABILITY : CMHC Information Products

BRINGING COMPUTERS INTO THE PERMITTING PROCESS, STRATHCONA COUNTY, ALBERTA = AUTOMATISATION DU PROCESSUS D'ÉMISSION DE PERMIS, STRATHCONA COUNTY (ALBERTA)

This report describes the process followed by Strathcona County to develop a computerized permit processing system and data base, integrated with the existing tax roll and assessment data base. The objective of the project was to reduce red tape and streamline the application and approval process for development and building activities. Results achieved are documented and lessons for other municipalities considering a similar initiative are covered.

Case study written by: Rowena E. Moyes. Prepared for: Federation of Canadian Municipalities; Canadian Home Builders' Association; Canadian Housing and Renewal Association; Canada Mortgage and Housing Corporation. Ottawa: FCM; CHBA; CHRA; CMHC, 2000. (Affordability and Choice Today (A.C.T.) Regulatory Reform Project; ACT Case Study) 30 pages

Order Number: 61992

STATUS : New Completed Report
AVAILABILITY : CMHC Information Products

HOW CAPE BRETON REGIONAL MUNICIPALITY STREAMLINED RESIDENTIAL BUILDING PLANS APPROVALS BY IMPROVING THE QUALITY OF PLANS SUBMITTED FOR REVIEW: FIRE-RESCUE AND BUILDING SERVICES DEPARTMENT OF THE CAPE BRETON REGIONAL MUNICIPALITY, NOVA SCOTIA = COMMENT LA MUNICIPALITÉ RÉGIONALE DU CAP-BRETON A RATIONALISÉ L'APPROBATION DES PLANS DE CONSTRUCTION RÉSIDENTIELLE EN AMÉLIORANT LA QUALITÉ DES PLANS PRÉSENTÉS POUR FINS D'EXAMEN : SERVICES DES INCENDIES ET DU BÂTIMENT DE LA MUNICIPALITÉ RÉGIONALE DU CAP-BRETON, NOUVELLE-ÉCOSSE

This report describes how the Cape Breton Municipality took a different approach to streamlining its residential building permit approval process. Where others focussed on relaxing standards or reorganizing their bureaucracy for greater efficiency, Cape Breton put its emphasis on the front-end of the system. It decided to improve the quality of the plans coming in for review.

The solution adopted by the Region was a training program to teach home builders and their designers how to complete and submit plans that are consistently code correct. Graduates of the course would be certified as "code-qualified" and plans submitted by them would require only a low-level review, meaning they could clear the system faster. For all practical purposes, their plans would arrive pre-approved.

Cape Breton conducted a trial run of its program in 1996 and began full implementation in the 1997 building season. The Region's average processing time for applications from "code-qualified" applicants has dropped to six days compared to an average of 14 days for the non-certified.

The Cape Breton experience can be easily duplicated and other municipalities could expect to reap the same benefits as Cape Breton. Staff would spend less time reviewing building plans and handling permit fee payments at a counter, so they would be free to do other work. The work environment for inspectors would improve because there would be fewer conflicts with builders over code violations.

There are also benefits for builders. They pay less to have their plans reviewed and significantly reduce the possibility of having to make expensive job-site corrections when inspectors spot code violations during construction.

Case study written by: Word-Works Communications Services. Prepared for: Federation of Canadian Municipalities; Canadian Home Builders' Association; Canadian Housing and Renewal Association; Canada Mortgage and Housing Corporation. Ottawa: FCM; CHBA; CHRA; CMHC, 1998 (Affordability and Choice Today (A.C.T.) Regulatory Reform Project; ACT Case Study)
32 pages

Order Number: 61997

STATUS : New Completed Report
AVAILABILITY : CMHC Information Products

HOW THE DISTRICT OF NORTH VANCOUVER BUILT COMMUNITY ACCEPTANCE FOR THE LEGALIZATION OF SECONDARY SUITES IN SINGLE FAMILY NEIGHBOURHOODS = COMMENT LE DISTRICT DE NORTH VANCOUVER EN EST VENU À FAIRE ACCEPTER PAR LA COLLECTIVITÉ LA LÉGISLATION DES APPARTEMENTS ACCESSOIRES DANS LES QUARTIERS CONSTITUÉS DE MAISONS INDIVIDUELLES

This case study describes how the District of North Vancouver built community acceptance for the legalization of secondary suites in single family neighbourhoods. Secondary suites meet a market requirement for low-rent housing, they are a form of urban intensification and they address various needs (mostly financial) of home owners. In spite of these benefits, there is real and perceived community resistance to secondary suites. This opposition is built upon apprehensions that suites adversely affect neighbourhood quality of life and that the people who inhabit them may not be the kind of folks you want living next door. After unsuccessful efforts to close down secondary suites, the municipality decided to try a different approach. The District exposed and deflated the mis-perceptions of residents and suite owners by publishing and promoting four factual documents that:

-- profiled owners of secondary suites and their tenants showing how they compared to the rest of the population;

- analysed the cost factors involved in upgrading existing suites to make them building code-compliant, concluding that $10,000 to $15,000 was a typical outlay;
- examined the types of complaints the District received about secondary suites as justification for putting appropriate controls in place; and
- examined the Provincial building code issues involved.

These 4 documents were circulated to builders and developers and to 22 community and ratepayer groups for comment. In addition, the District staged a televised public forum on the issue to obtain input from the public at large. In the end, the District achieved what it wanted -- widespread community acceptance that secondary suites serve genuine needs and therefore deserve a place in the housing mix. The by-law Council passed in October 1997, to legalize secondary suites in single family zones reflected public input. It demands sufficient space for parking, requires that owners live in the home and that there be only one suite per house. District of North Vancouver officials think their experience can benefit other municipalities. The process they used, particularly the research methodology, could be followed by others. Asked what they learned from their experience that could help others, District officials cite three key points:

1. provide the public with factual information based on solid research;
2. find common ground (in this case, consensus focused on health and safety issues); and
3. adopt a non-punitive approach.

Case study written by: Word-Works Communications Services. Prepared for: Federation of Canadian Municipalities; Canadian Home Builders' Association; Canadian Housing and Renewal Association; Canada Mortgage and Housing Corporation. Ottawa: FCM; CHBA; CHRA; CMHC, 1999. (Affordability and Choice Today (A.C.T.) Regulatory Reform Project; ACT Case Study) 37 pages

Order number: 61991

STATUS : New Completed Report
AVAILABILITY : CMHC Information Products

INCREASING HOUSING IN RURAL COMMUNITY CENTRES, BEAUBASSIN PLANNING COMMISSION, CAP-PELÉ, NEW BRUNSWICK = LA DENSIFICATION RÉSIDENTIELLE DANS LES CENTRES COMMUNAUTAIRES RURAUX, COMMISSION D'AMÉNAGEMENT BEAUBASSIN, CAP-PELÉ (NOUVEAU-BRUNSWICK)

This ACT case study briefly outlines the unrestrained development in rural areas of New Brunswick that was threatening the province's natural resources and creating unsustainable communities. It documents the work of the Beaubassin Planning Commission on behalf of the Beaubassin East Rural Community to examine ways to control sprawl and enhance community life in rural areas. The key to increasing residential density in non-serviced rural areas was to identify alternative ways to treat wastewater in a manner that protects the environment and maintains health standards. The Planning Commission:

-- conducted research on innovative types of sewage and storm-water drainage systems
-- assessed the feasibility of installing shared or community septic systems to dispose of wastewater; and
-- recommended modifications to provincial regulations so as to permit increased densities in non-serviced rural community centres.

As a result of these regulatory changes, property owners in designated community centres can now build a single-family home on a 2000 square metre lot, one-half the previous minimum lot size. The revised zoning bylaw also permits the construction of a second building on a 4,000 square metre lot containing a single-family home. The report outlines how the new zoning regulations enable the Beaubassin East Rural Community to offer a wider range of affordable housing and increase both the speed and flexibility of the development approval process.

Case study written by: Julie Tasker-Brown. Prepared for: Federation of Canadian Municipalities; Canadian Home Builders' Association; Canadian Housing and Renewal Association; Canada Mortgage and Housing Corporation. Ottawa: FCM; CHBA; CHRA; CMHC, 1999. (Affordability and Choice Today (A.C.T.) Regulatory Reform Project; ACT Case Study) 34 pages

Order Number: 61995

STATUS : New Completed Report
AVAILABILITY : CMHC Information Products

MUNICIPAL SURVEY OF REGULATORY REFORM

Through a survey of over 100 Canadian municipalities, the purpose of this study is to collect information on the status and effectiveness of regulatory reforms aimed at increasing housing affordability and choice. The survey will also identify housing-related issues considered to be key priorities by municipalities. The final report and research highlight are expected in July 2001 and will be of interest to municipalities, builders, non-profit housing groups and housing professionals.

CMHC Project Officer : *Susan Fisher*
Division : Research Division
AVAILABILITY : Publication is not available

CIDN : 2279 0200001
STATUS : Ongoing Project

ONE-STOP APPROVAL FOR MINOR RESIDENTIAL RENOVATIONS, ANDRÉ FORTIN, ARCHITECT, MONTRÉAL, QUEBEC = PROJET D'AUTORISATION INSTANTANÉE POUR LES TRANSFORMATIONS RÉSIDENTIELLES MINEURES, ANDRÉ FORTIN, ARCHITECTE, MONTRÉAL (QUÉBEC)

This report describes the work of André Fortin to improve the permit issuance process for minor residential renovation projects in the City of Montréal. This type of renovation project is frequently undertaken by the property owner without the assistance of a building professional and sometimes without a permit. In doing so, construction safety and quality, and architectural integration are adversely affected. Most homeowners lack the specialized technical knowledge required to prepare the plans and specifications that must be submitted to receive a building permit. Homeowners are often unfamiliar with the approval process, which can be complicated and lengthy, and some find little technical support available to them.

André Fortin, a local architect, was awarded an A.C.T. grant to develop a series of technical guides that help homeowners in the City of Montréal prepare permit applications for minor residential renovations. Separate guides were created for different types of renovation projects such as:
-- converting basements to apartments;
-- minor additions or interior renovations that would provide additional housing; and
-- renovations that make the existing living space accessible to persons with disabilities.

The guides contain sample designs as well as advice on regulations in force and the scope of construction work required. The guides, as well as meetings with municipal staff, provide homeowners with technical support, reduce the documentation required, and speed up the approval process for minor residential renovation projects. This encourages good quality renovation work that complies with existing municipal regulations and reduces administration costs. The report includes a sample technical guide for building a deck and a sample application form for a basement unit dwelling. The technical guides are a useful reference for all Canadian municipalities using National Building Code regulations.

Case study written by: Julie Tasker-Brown. Prepared for: Federation of Canadian Municipalities; Canadian Home Builders' Association; Canadian Housing and Renewal Association; Canada Mortgage and Housing Corporation. Ottawa: FCM; CHBA; CHRA; CMHC, 1999. (Affordability and Choice Today (A.C.T.) Streamlined Approval Process Project; ACT Case Study) 32 pages

Order Number: 61999

STATUS : New Completed Report
AVAILABILITY : CMHC Information Products

SURREY'S USE OF INTERACTIVE TOUCH-SCREEN TECHNOLOGY TO EXPEDITE CLIENTS REQUESTS FOR BUILDING PERMIT AND DEVELOPMENT PROCESS INFORMATION: THE CITY OF SURREY PLANNING AND DEVELOPMENT DEPARTMENT = UTILISATION DE LA TECHNOLOGIE INTERACTIVE À ÉCRAN TACTILE PAR LA VILLE DE SURREY AFIN D'ACCÉLÉRER LE TRAITEMENT DES DEMANDES DE PERMIS DE CONSTRUIRE ET D'INFORMATION SUR LE PROCESSUS D'AMÉNAGEMENT : SERVICE D'URBANISME ET D'AMÉNAGEMENT DE LA VILLE DE SURREY

This case study report documents the use of touchscreen and computer technology by the City of Surrey, B.C. so individuals seeking information about land development and building permit policies can serve themselves. The City says its Touchscreen Info-Centre helps streamline permit handling

REGULATORY REFORM

and enhance customer service. Since delays in construction cost money, the kiosks serve the cause of housing affordability by making permit issuance procedures more efficient. The methodology used to create them could be easily emulated by any other municipality.

Case study written by: Word-Works Communications Services. Prepared for: Federation of Canadian Municipalities; Canadian Home Builders' Association; Canadian Housing and Renewal Association; Canada Mortgage and Housing Corporation. Ottawa: FCM; CHBA; CHRA; CMHC, 2000. (Affordability and Choice Today (A.C.T.) Regulatory Reform Project; ACT Case Study)

STATUS : New Completed Report
AVAILABILITY : CMHC Information Products
**See Also: *Australian Building Regulation and Liability Reforms*, p. 59

RENOVATION AND INSPECTION

DISINVESTMENT AND THE DECLINE OF URBAN NEIGHBORHOODS

The project aims to develop an understanding of the forces and factors that trigger or accelerate neighborhood decline; create a consensual framework for action that can stem or reverse the housing decline spiral; ascertain the role of investment in housing as a primer for regeneration and identify opportunities for concrete action involving partnerships. Three cities that have experienced inner neighborhood decline and three that have successfully prevented decline are used as the basis for the analysis. Lessons are drawn about strategies or mechanisms that can arrest decline before it becomes a self-reinforcing spiral.

CMHC Project Officer : *Fanis Grammenos*
Division : Research Division
AVAILABILITY : Publication is not available
CIDN : 2124 020001
STATUS : Ongoing Project

RENTAL HOUSING

ANALYSIS OF PENSION AND RRSP INVESTMENTS IN CANADIAN RENTAL HOUSING

This study assesses whether Canadian registered pension plans (RPPs) and retirement savings plans (RRSPs) currently under-invest in rental housing, and if so, whether there are specific obstacles to investment and policy options that would potentially increase investment. The study methodology involves an integrated approach consisting of five elements:
-- a review of the legislative and regulatory environment;
-- a synthesis of the theoretical and empirical literature on modern portfolio theory;
-- a survey of pension funds and money managers;
-- a comparative assessment of the Canadian/U.S. environments and results; and
-- a quantitative analysis of rental housing investments by RPPs/RRSPs.

The primary focus of the study is on equity investments. The study finds that RPPs/RRSPs hold only minuscule amounts of rental housing investments. The evidence presented indicates that there is substantial scope for increasing RPP/RRSP investment in rental housing, assuming current obstacles can be removed. Any significant boost in the flow of such savings to rental housing could substantially increase equity investments in the sector and potentially lower cost and rents. The study identifies a number of specific obstacles to investment and makes suggestions for improving the investment climate.

Prepared by Alex S. MacNiven. CMHC Project Officer: Ian Melzer. Ottawa: Canada Mortgage and Housing Corporation, 2001 (External Research Program) 183 pages

NOTE : No. 79 in the Research Highlights Socio-economic Series summarizes the results of this research and is available on the CMHC web site.

STATUS : New Completed Report
AVAILABILITY : Canadian Housing Information Centre

ASSESSMENT REPORT ON RENTAL HOUSING TAXATION IN CANADA

The objective of this project is to write an assessment report on rental housing taxation in Canada which will identify all rental housing and related tax provisions; explain how each of these rental housing and related tax operates, including the use of illustrative numerical examples in each and every case; and discuss the generally-accepted criteria and a feasible methodology for determining the appropriateness of the current taxation regime applicable to rental housing.

CMHC Project Officer : *Eric Tsang*
Division : Strategic Policy & Planning
AVAILABILITY : Publication is not available

CIDN : 2405 0100002
STATUS : Ongoing Project

INVESTMENT IN RESIDENTIAL RENTAL HOUSING IN CANADA: LESSONS LEARNED FROM STUDIES AND RESEARCH

The objective of this project was to identify the reasons that lead investors to include rental properties in their portfolios. The work consisted of a review of the literature addressing the choice of residential rental properties as investments and the place of such investments within investor portfolios. The consultant therefore had to present the different theories and approaches serving to determine the criteria used by investors.

This review first revealed the lack of reliable data on real estate return. Without such data, the empirical properties of this type of investment, and particularly its diversification effect, cannot be established accurately. The absence of any Canadian studies on this subject is also noted. In spite of these findings, certain studies tend to demonstrate that taxation related to rental housing investments has had a significant impact on the inclusion of such investments in investor portfolios. There is also the strong correlation between real estate return and inflation that may have encouraged investors to include such investments in their portfolios to protect their return against inflation.

Prepared by Mario Fortin. Prepared for Canada Mortgage and Housing Corporation. CMHC Project Officer: Benoît Sanscartier. Ottawa: CMHC, 2000, c1996.

NOTE: Issued also in French under the title: Investissement dans le logement locatif résidentiel au Canada : leçons des études et avenues de recherche

STATUS : New Completed Report
AVAILABILITY : Canadian Housing Information Centre

NON-PAYMENT OF RENTS AND THE HEALTH OF THE RENTAL SECTOR IN QUEBEC

This research will measure the extent and spatial distribution of the non-payment of rents in Quebec and its economic impact on the rental sector; identify the socio-economic and demographic factors that could explain the growth of this phenomenon as observed in the number of actions brought by landlords; analyze the regulations governing the processing of recovery-termination cases in view of improving the current procedure at the *Régie du logement*.

CMHC Project Officer : *Charles Fortin*
CIDN : 2305 0200018
Division : External Research Program
STATUS : Planned
AVAILABILITY : Publication is not available

NON-REGULATORY INTERVENTIONS FOR ROOMING HOUSES/SROS AND TENANTS

This project will document non-regulatory initiatives that have been undertaken in Canada and the US that have had the effect of conserving the rooming house stock and stabilizing tenancies.

CMHC Project Officer : *Anna Lenk*
CIDN : 2432 0200
Division : Research Division
STATUS : Planned
AVAILABILITY : Publication is not available

REGULATORY FACTORS IN THE RETENTION AND EXPANSION OF ROOMING HOUSE STOCK: FINAL REPORT

This study was carried out to develop a comprehensive picture of how rooming houses are regulated across the country and, furthermore, how those regulations have affected the number and type of rooming houses over the years. A review of recent literature, together with profiles of rooming house regulatory practices in 11 major centres across Canada, found:

-- that most municipalities follow similar regulatory approaches based on a combination of zoning regulations, maintenance and occupancy standards, building standards, fire-safety standards, public health standards and licensing laws;

-- the lack of co-ordination in the application and enforcement of these regulations in many municipalities is creating concerns among operators and other stakeholders in the rooming house sector;

-- there is a growing demand for rooming house-type accommodation due to such factors as growth in single person households, increasing homelessness and growing student needs;

-- supply factors such as shrinking vacancy rates, escalating rents, long social housing waiting lists and lack of new social housing development are placing growing pressure on the rooming house sector.

The report identifies a number of lessons for effective enforcement and outlines innovative regulatory practices that have been adopted by municipalities such as the City of Edmonton and the City of Winnipeg to reduce regulatory barriers and costs.

Prepared by The Starr Group Inc. in association with Richard Drdla Associates. CMHC Project Officer: Anna Lenk. Ottawa: Canada Mortgage and Housing Corporation, 2000.

STATUS : New Completed Report
AVAILABILITY : Canadian Housing Information Centre

COMMUNITY DESIGN: AN ANALYSIS OF DENSITY MEANINGS AND DEVELOPMENT OF A DESIGN TOOL

The study will address how Land Use Density (LUD) stipulations can impact and/or interplay with the various other system components of community plan-making,, e.g. open space, schools, retail, etc.

CMHC Project Officer : *Doug Pollard*
Division : External Research Program
Grant Recipient : William T. Perks
Principal, William Perks Professional Services
2505 - 5th Street S.W.
Calgary AB T2S 2S2
AVAILABILITY : Publication is not available

CIDN : 1998 0200001
STATUS : Ongoing Project

EFFECTS OF DEVELOPMENT CHARGES ON URBAN FORM

The purpose of this research project was to conduct a nation-wide survey of builders and developers to determine the effects of development charges on industry decisions related to residential densities, location and timing. Case studies in selected cities explore in more detail how specific development charge regimes are affecting residential development patterns.

This report looks at the effects of development charges (dc's) on industry decisions related to residential densities, location and timing. The first phase of the work consists of a survey of 1,214 builders and developers; 265 responses were submitted (22%), representing firms ranging in size from 5 to 60 employees. All of the firms are located in urban regions consisting of more than one municipality. Some of the results are presented below.

-- Most of the respondents (86%) indicated that differences in development charge fees among the municipalities in their respective urban regions have at least some impact on their regional locational decisions; 32% indicated a major impact.
-- Slightly more than 17% of respondents said that they always locate in municipalities with lower dc's, while 69% said that they sometimes favour areas with lower dc's.
-- When locating within a municipality where dc's vary by location, 64% of respondents said that "area-specific" charges have a "major" or "medium" impact on their locational decisions; of these, 20.5% "always" located in lower-charge areas, while 63.6% "sometimes" located in lower-charge areas.
-- A majority of respondents (54.5%) thought that development charges have a "major" or "medium" impact on their decisions related to lot sizes; of these, 56.5% thought that they tended to decrease lot sizes.
-- 31.4% of respondents felt that the dc's in their respective municipalities favour detached houses; 24.4% said they favour attached houses; 18.6% said multiples; 14.0 thought they encourage a mix of houses; and the rest didn't know.

Prepared by Ray Tomalty, Peck & Associates in association with Christine Warne and Pip White of Urban Aspects. Ottawa: Canada Mortgage and Housing Corporation, 2000.

STATUS : New Completed Report
AVAILABILITY : Canadian Housing Information Centre

PRO-HOME: A PROGRESSIVE, PLANNED APPROACH TO AFFORDABLE HOME OWNERSHIP

This study describes an incremental or progressive approach to residential development, the Pro-Home approach, and examines its potential to increase access to affordable home ownership in Canada.

Pro-Home refers to an incremental approach to housing development whereby households enter the market at a level they can afford, and over time, alter or expand their housing in accordance with their financial means and housing needs. Using lessons learned from the unplanned residential developments that took place in Toronto prior to 1950, the Pro-Home proposes a planned and progressive approach to housing development.

This study is organized in the following five parts:

- Part I outlines the context underpinning the Pro-Home concept, namely, the need to introduce new practical solutions to address the growing problem of housing affordability in major urban areas in Canada.
- Part II reviews a number of Canadian and international precedents of owner-built or incremental housing, tracing how progressive approaches to residential development have facilitated access to affordable home ownership and what lessons can be derived from these experiences.
- Part III provides a general description of the Pro-Home concept, illustrating its key features and design elements.
- Part IV presents a detailed application scenario of the Pro-Home approach to housing development, including a cost proforma and analysis of possible constraints to implementation.
- Part V proposes an implementation framework for incremental housing development, focusing on organizational elements such as partnerships, an organizational model and an implementation process.

Prepared by John van Nostrand of Planning Alliance with the assistance of Jill Wigle. CMHC Project Officer: Fanis Grammenos. Ottawa: Canada Mortgage and Housing Corporation, 2000. (External Research Program) vii, 65 pages.

STATUS : New Completed Report
AVAILABILITY : Canadian Housing Information Centre

PROJECT TO ENCOURAGE TRIPLEX AND QUADRUPLEX HOUSING, CITY OF NANAIMO, BRITISH COLUMBIA = PROJET VISANT À ENCOURAGER LES TRIPLEX ET QUADRUPLEX, VILLE DE NANAIMO (COLOMBIE-BRITANNIQUE)

This case study report describes the work of the City of Nanaimo to expand the opportunities for its growing numbers of lower to moderate income seniors, empty nesters and first time buyers to access affordable housing through the creation of well designed triplex and quadruplex projects. Community representatives, the Nanaimo Home Builders' Association and the Nanaimo Chapter of the Vancouver Island Architects Association participated in this project to provide an alternate form of housing that would fit in with traditional neighbourhoods. The objectives of the project were to:

- bring stakeholders in the housing sector together to design three innovative triplex and quadruplex housing forms;
- prepare design guidelines for the development of attractive, affordable, triplex and quadruplex housing; and
- adopt appropriate changes to the Official Community Plan, Zoning Bylaw, Subdivision Guidelines and Multi-family Development Permit Guidelines to allow for this type of housing within single family neighbourhoods.

Case study written by: Rowena E. Moyes. Prepared for: Federation of Canadian Municipalities; Canadian Home Builders' Association; Canadian Housing and Renewal Association; Canada Mortgage and Housing Corporation. Ottawa: FCM; CHBA; CHRA; CMHC, 1998. (Affordability and Choice Today (A.C.T.) Regulatory Reform Project; ACT Case Study) 48 pages

Order Number: 61996

STATUS : New Completed Report

AVAILABILITY : CMHC Information Products

SUSTAINABLE MUNICIPAL INFRASTRUCTURE DESIGN FOR A RESIDENTIAL DEVELOPMENT

This project's objectives are to review current practices pertaining to suburban communities in Southern Ontario, Canada and in other parts of the world; consider alternative design options for subdivisions and provide practical and up-to-date recommendations for the incorporation of more newly available products and processes to improve the design of residential developments. The alternative design options will be evaluated for energy efficiency and resource conservation.

CMHC Project Officer : *Susan Fisher*

Division : Research Division

AVAILABILITY : Publication is not available

CIDN : 2144 0200021

STATUS : Planned

SENIORS

EVALUATION OF OPTIMAL BATH GRAB BAR PLACEMENT FOR SENIORS

This project's objective is to assess different locations and configurations of bathtub grab bars and to identify the safest and most useful options to help independent seniors living in the home to maintain their independence and avoid falls.

CMHC Project Officer : *Luis Rodriguez*

Division : External Research Program

AVAILABILITY : Publication is not available

CIDN : 2305 0200021

STATUS : New Project

HOUSING OPTIONS FOR OLDER CANADIANS: USER SATISFACTION STUDY

The objective of this research was to carry out user satisfaction studies of some of the newer housing options that are currently available to older Canadians, and to produce an objective and detailed report based on the results of the research.

The research included 24 case studies of housing options for older Canadians from across the country. During site visits to each of these housing options, focus groups were held with key stakeholders involved in establishing and operating the projects (planners, managers, owners, service-providers, etc.), a sample of residents participated in "walk and talk" evaluations of their dwelling units, and study staff completed an architectural checklist. Additionally, photos, architectural drawings, brochures and policy manuals were collected from each of the 24 sites and a resident satisfaction survey was distributed.

The report is published in 3 parts:

Part 1 presents the findings from the 24 case studies that were carried out, emphasizing the projects' design characteristics and development process, as well as the residents' level of satisfaction with their housing. The results are grouped under six categories of housing.

Part 2 presents detailed findings from the Resident Satisfaction Survey that was carried out. These are discussed under the following nine headings: Respondent Characteristics, Personal Housing History, Current Housing, Satisfaction with Housing Features, Satisfaction with Tenure Arrangement, Satisfaction with Social Involvement and Interaction, Satisfaction with Management and Operational Approaches, Satisfaction with Support Services and Amenities and Overall Satisfaction with Housing Project.

Part 3 contains the frequency tables from which the data in Parts 1 and 2 reports derived, as well as the various forms, checklists, and research and survey tools that were used to carry out the study.

Prepared by Gloria Gutman, Mary Ann Clarke Scott and Nancy Gnaedinger in collaboration with Danielle Maltais, Luba Serge and David Bruce. Prepared for Research Division, Canada Mortgage and Housing Corporation. CMHC Project Officer: Luis Rodriguez. Ottawa: CMHC, 2001. 3 volumes.

NOTE :. No. 83 in the Research Highlights Socio-economic Series summarizes the results of this research and is available on the CMHC web site.

STATUS : New Completed Report
AVAILABILITY : Canadian Housing Information Centre

IMPROVING QUALITY OF LIFE IN BOARDING HOUSES FOR THE ELDERLY: REGROUPEMENT DES RÉSIDENCES POUR RETRAITÉS DU QUÉBEC, MONTRÉAL, QUÉBEC = AMÉLIORATION DE LA QUALITÉ DE VIE DANS LES RÉSIDENCES POUR PERSONNES ÂGÉES : REGROUPEMENT DES RÉSIDENCES POUR RETRAITÉS DU QUÉBEC, MONTRÉAL, QUÉBEC

In Quebec, as elsewhere in Canada, the growing number of seniors combined with a serious lack of housing has led to the proliferation of small, privately-run residences providing room and board to elderly persons. In many cases, these homes operate without a permit and therefore, without adequate regulatory control over the quality of the accommodation or services provided.

In response to this situation, in December 1993, the City of Châteauguay amended its bylaw to ensure that homes providing room and board to more than two persons meet minimum standards of health and safety. Inspired by the Châteauguay example, the Regroupement des résidences pour retraités du Québec (RRRQ), a provincial organization of seniors' residences, undertook an A*C*T initiative to develop a set of regulatory tools intended for use by Quebec municipalities wishing to improve the quality of life in small boarding houses for elderly people.

This case study report describes the work done in reviewing existing regulatory initiatives in Châteauguay as well as in Laval and Longueuil, which led to the identification of three approaches to improving living conditions in small boarding houses:

- a model bylaw that applies to boarding houses containing fewer than ten rooms for rent;
- a municipal registry of homes that comply with the bylaw; and
- the creation of an ongoing dialogue between the key players, such as the municipality and a CLSC.

Case study written by: Julie Tasker-Brown. Prepared for: Federation of Canadian Municipalities; Canadian Home Builders' Association; Canadian Housing and Renewal Association; Canada Mortgage and Housing Corporation. Ottawa: FCM; CHBA; CHRA; CMHC, 1999. (Affordability and Choice Today (A.C.T.) Streamlined Approval Process Project; ACT Case Study)

Order Number: 61998

STATUS : New Completed Report
AVAILABILITY : CMHC Information Products

SÉCURITÉ EN CAS D'INCENDIE : PERSONNES À MOBILITÉ RÉDUITE VIVANT EN MILIEU RÉSIDENTIEL RÉGULIER

The primary objective of the project was to identify measures that could increase the level of fire safety for persons with disabilities living in regular residential buildings.

The project concluded that owners of regular residential buildings must become aware of the situation of persons with disabilities who live in their buildings and that they must establish a fire safety plan (FSP) with evacuation strategies that take into account the architectural characteristics of the building, the characteristics and evacuation capacities of the occupants and the intervention capability of the local fire department. The report also provides advice to help owners establish a fire safety plan for their buildings.

Prepared by Sophie Lanctôt, Société Logique inc. CMHC Project Officer: Luis Rodriguez. Ottawa: Canada Mortgage and Housing Corporation, 2000. (External Research Program) 121 pages.

STATUS : New Completed Report
AVAILABILITY : Canadian Housing Information Centre

STUDY OF SPATIAL ORIENTATION IN A RESIDENTIAL COMPLEX FOR SENIORS WITH OR WITHOUT COGNITIVE DISORDERS

The general purpose of this research project is to obtain spatial orientation design criteria that will make it possible to work on the architectural environment of residential complexes for seniors. The analysis concerns three typical residential complexes.

CMHC Project Officer : *Luis Rodriguez*
Division : Research Division
AVAILABILITY : Publication is not available
CIDN : 2144 0200017
STATUS : Ongoing Project

SOCIAL HOUSING

TAKING ANOTHER LOOK AT MIXED INCOME COMMUNITIES: WHO ARE THE MARKET TENANTS LIVING IN SOCIAL HOUSING (ERP)

This research study will focus on the Greater Vancouver area to determine the extent to which similar characteristics exist among market renters living in units built under the Province of BC Homes BC program.

CMHC Project Officer : *William Lortie*
Division : External Research Program
AVAILABILITY : Publication is not available
CIDN : 2305 020001
STATUS : Planned

ARDENCRAIG: DOCUMENTATION OF AN URBAN INFILL AND REMODEL PROJECT WITH SUSTAINABILITY ELEMENTS

This research will document an urban infill and renovation project in Vancouver by a developer who is highly motivated to produce an innovative project with a sustainability emphasis. The design and construction process will be followed closely, illustrating each item considered, and highlighting the practicality, cost, technical and market acceptance issues around each decision. This will be reported as a 'story line' with summary text and photos. When the project is built, visitors and prospective occupants will be surveyed on their reaction to the innovative features.

CMHC Project Officer : *Brian Eames*
Division : External Research Program
AVAILABILITY : Publication is not available
CIDN : 2305 0200010
STATUS : New Project

CMHC CONTRIBUTION TO THE SUSTAINABLE COMMUNITY DEMONSTRATION IN SURREY B.C.

This study will document the planning of an innovative, sustainable community in an emerging urban area of Surrey, B.C, called East Clayton. It will show and describe the Neighbourhood Concept Plan (NCP) for this site, and outline the benefits of this plan over a more conventional neighbourhood design. It will also describe the process of consultation, design and planning of the NCP.

CMHC Project Officer : *Susan Fisher*
Division : Research Division
AVAILABILITY : Publication is not available
CIDN : 2219 0200001
STATUS : Ongoing Project

FROM THEORY TO PRACTICE: A REVIEW OF PERFORMANCE ASSESSMENT CRITERIA FOR IMPLEMENTING SUSTAINABLE COMMUNITIES

The purpose of this project is to identify and briefly describe a number of performance assessment criteria that are currently being used to operationalize the principles/features/objectives of sustainable community development from Canada, the US and Europe, etc.

CMHC Project Officer : *Doug Pollard*
Division : External Research Program
AVAILABILITY : Publication is not available
CIDN : 2305 0200012
STATUS : New Project

IMPACT OF HOUSING CHOICES: CONSUMER INFORMATION ON SUSTAINABLE COMMUNITY PLANNING

The purpose of this project is to develop a consumer-oriented information product comparing the impact of various housing choice scenarios, each with different community planning patterns.

CMHC Project Officer : *Susan Fisher*
Division : Research Division
AVAILABILITY : Publication is not available
CIDN : 2280 0200001
STATUS : New Project

LANDSCAPE DESIGN AND MAINTENANCE FOR CANADIAN HOMES

The purpose is to develop an updated advisory document on landscape design, construction and maintenance for Canadian homes. CMHC's last advisory document of this nature, entitled Landscape Architectural Design and Maintenance, was published in 1982. While it offers many practical tips and tools which should be emulated, the update will be more oriented toward a consumer-audience, place more emphasis on sustainability and build on recent CMHC research in this area. The document will be completed in 2001 and will be of interest to consumers, landscape architects and the landscape industry.

CMHC Project Officer : *Susan Fisher*
Division : Research Division
AVAILABILITY : Publication is not available

CIDN : 2229 0200001
STATUS : Ongoing Project

MULTIPLE HOUSING FOR COMMUNITY SUSTAINABILITY

To design and build sustainable communities, professionals in the housing industry need to be familiar with the features of sustainability and their potential appeal to the consumer. This report focuses on the factors that make medium density housing sustainable and appealing to certain segments of the market. It provides a detailed account of consumer requirements for medium density housing and gives examples, both existing and new, of how these can be satisfied. It describes clearly which households are likely to choose medium density forms and how to appeal to them with specific features and marketing tactics. A wealth of illustrations make these features clear and connects them to expressed consumer expectations.

This study will become a valuable reference of ideas for developers or planners that seek to intensify land use in cities. The rich material in the report enables developers and municipalities to base the case for medium density housing firmly in consumer preferences and market demand. It gives the ground rules for satisfying consumer expectations and a range of models with which to do it. It promotes greater acceptance of medium density housing and that enable communities to become more sustainable.

Prepared by Quadrangle Architects Limited, Urban Research Associates, Alen Kani Associates, David Redmond and Associates. Prepared for Research Division, Canada Mortgage and Housing Corporation and Natural Resources Canada, Regional Municipality of Ottawa-Carleton. CMHC Project Officer: Fanis Grammenos. Ottawa: CMHC, c2000. (Housing Affordability and Finance Series Research Report) iv, 53 pages

Order number: 62148

NOTE : Aussi disponible en français sous le titre : Logement collectif et la collectivité durable

STATUS : New Completed Report
AVAILABILITY : CMHC Information Products

PARTICIPATION METHODOLOGY TO GENERATE SUSTAINABLE URBAN COMMUNITY PLANNING

This project's objective is to develop a user participation methodology to generate sustainable urban community planning.

CMHC Project Officer : *Doug Pollard*
Division : Research Division
AVAILABILITY : Publication is not available

CIDN : 2308 0200001
STATUS : New Project

TESTING CONSUMER RECEPTIVITY TO SUSTAINABLE COMMUNITY DESIGN FOR A DEMONSTRATION -BUILD SITE IN OKOTOKS, ALBERTA

CMHC contribution to develop a computer-based visualization tool that will illustrate and describe the features of a 144-acre demonstration project that adopts sustainable community principles and planning criteria.

CMHC Project Officer : *Susan Fisher*
Division : Research Division
AVAILABILITY : Publication is not available

CIDN : 2363 0200001
STATUS : New Project

YOUR NEXT MOVE: CHOOSING A NEIGHBOURHOOD WITH SUSTAINABLE FEATURES

If you are considering a move, this guide will help you identify neighbourhood features that benefit you and the environment. You will learn about the features, like close access to shopping and jobs as well as see examples from real neighbourhoods across Canada. When searching for your next home, use the checklist to compare neighbourhoods.

Ottawa: Canada Mortgage and Housing Corporation, 2001. 8 pages

Order Number: 62180

Note: Aussi disponible en français sous le titre : Lors de votre prochain déménagement : choisissez un quartier comportant des caractéristiques durables

STATUS : New Completed Report
AVAILABILITY : CMHC Information Products
Note: Also available on the Internet:
http://www.cmhc-schl.gc.ca/en/bureho/buho/buho_003.cfm

URBAN TRANSPORTATION

GREENHOUSE GAS EMISSIONS FROM URBAN TRAVEL: TOOL FOR EVALUATING NEIGHBOURHOOD SUSTAINABILITY

The purpose of this study is to develop a tool that calculates greenhouse gas (GHG) emissions from personal urban transportation (i.e. cars and public transit) given variations in neighbourhood planning and design variables such as density and land use mix, as well as demographic and locational variables. The Research Report includes a software tool that can be used to evaluate neighbourhood development proposals for GHG emissions from urban travel. In the study, the software is used to compare the GHGs from urban travel of nine neighbourhood scenarios, each with different design features and locational variables.

The results of the evaluation of the nine neighbourhood scenarios using the model developed in this study suggest that the "macro" urban structure is more important than the "micro" neighbourhood design in reducing GHG emissions from auto and transit travel by neighbourhood residents. That is, infill development is more effective than greenfield development in moderating the growth of GHG emissions, even if the new greenfield neighbourhood is neo-traditional rather than typical suburban in design. However, neighbourhood design is also a significant determinant of GHG emissions and can go a long way in improving the sustainability of neighbourhoods in the outer regions of urban areas.

The spreadsheet tool produced by this study provides a useful instrument for planners and developers in comparing the GHG emissions of different neighbourhood scenarios. It enables them to compare the implications of both local neighourhood design and the broader-scale urban structure considerations of infill versus greenfield development.

Prepared by IBI Group for Canada Mortgage and Housing Corporation and Natural Resources Canada. CMHC Project Officer: Susan Fisher. Ottawa: CMHC, 2000. (Healthy Housing and Communities Series) ix, 60 pages.

Order Number: 62142

NOTE : Aussi disponible en français sous le titre : Émissions de gaz à effet de serre attribuables aux déplacements urbains (PF 0432)

STATUS : Completed Report
AVAILABILITY : CMHC Information Products

REGIONAL ROAD CORRIDOR DESIGN GUIDELINES. SOCIO-ECONOMIC RESEARCH HIGHLIGHT; NO. 52

This document addresses the function and design of regional arterial roads and adjacent lands in the urban areas and villages of the former Region of Ottawa-Carleton (now the City of Ottawa). It provides design guidelines that integrate traditional objectives like safety and efficiency of vehicular movement with safe, pleasant and convenient movement of pedestrians, cyclists, and transit users. The document crosses traditional boundaries between land use and transportation planning by including the road right-of-way (ROW) and its interface with adjacent land uses, right up to building facades. While the guidelines were developed specifically by the former Region of Ottawa-Carleton, they could also apply to similar municipalities across Canada.

Ottawa: Canada Mortgage and Housing Corporation, 2001. 6 pages

NOTE : Aussi disponible en français sous le titre : Lignes directrices en matière de conception des corridors de routes régionales. Point en recherche : série socio-économique; no. 52

STATUS : New Completed Report
AVAILABILITY : Canadian Housing Information Centre and available on the Internet at: http://www.cmhc-schl.gc.ca/publications/en/rh-pr/main_en.html

YOUTH AND HOUSING

INNOVATIVE HOUSING FOR HOMELESS YOUTH

The purpose of this project is to research and identify the innovative aspects of housing for homeless youth in terms of architecture, management and support services and to identify what makes a project exceptional and successful.

CMHC Project Officer : *Anna Lenk*
Division : External Research Program
AVAILABILITY : Publication is not available

CIDN : 2305 0200001
STATUS : Ongoing Project

RESIDENTIAL INTEGRATION OF YOUNG MIGRANTS IN QUEBEC

This study concerns the residential integration process of young migrants in Quebec. Residential integration is defined as a process that begins even before young people leave their parents' home and that continues until they are relatively stable in a dwelling; this stability often, but not necessarily, corresponds to the formation of a family unit.

CMHC Project Officer : *Leanne Elliott*

Division : External Research Program

AVAILABILITY : Publication is not available

CIDN : 2305 0200005

STATUS : New Project

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